

637 935

Report Number: 214-TRC-04-008

Safety Compliance Testing For FMVSS 214

Side Impact Protection

Indicant

Fuji Heavy Industries LTD.

2005 Subaru Legacy 4-door

NHTSA Number: C55500

Transportation Research Center Inc.

10820 State Route 347

P. O. Box B-67

East Liberty, OH 43319



Test Date: April 13, 2005

Final Report: April 26, 2005


**U. S. Department Of Transportation
National Highway Traffic Safety Administration
Enforcement**

**Office of Vehicle Safety Compliance
400 Seventh Street, S. W.
Room No. 6111 (NVS-220)
Washington, DC 20590**

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-02-D-11114. This publication is distributed by the U. S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings, and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Test Performed By: John Shultz, Supervisor

Report Approved By: _____


Walter Dudek, Project Manager
Transportation Research Center Inc.

Approval Date: _____

4/26/2005

FINAL REPORT ACCEPTANCE BY OVSC:

Accepted By: _____



Acceptance Date: _____

7/18/05

1. Report No. 214-TRC-04-008	2. Government Accession No.	3. Recipient's Catalog No.																															
4. Title and Subtitle Final Report of FMVSS 214 Compliance Side Impact Testing of a 2005 Subaru Legacy 4-door, NHTSA No.: C55500		5. Report Date April 13, 2005	6. Performing Organization Code TRC Inc.																														
		8. Performing Organization Report No. 050413																															
7. Author(s) Walter Dudek, Project Manager Transportation Research Center Inc.		10. Work Unit No. (TRIS)																															
9. Performing Organization Name and Address Transportation Research Center Inc. 10820 State Route 347 East Liberty, OH 43319		11. Contract or Grant No. DTNH22-02-D-11114																															
		13. Type of Report and Period Covered Final Report April 2005																															
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Enforcement Office of Vehicle Safety Compliance (NVS-220) 400 Seventh Street, S.W., Room 6111 Washington, DC 20590		14. Sponsoring Agency Code NVS-220																															
		15. Supplemental Notes																															
16. Abstract <p>This 48/24 km/h 90° Impact (Moving Deformable Barrier) Compliance Test was conducted on the subject vehicle, a 2005 Subaru Legacy 4-door in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-214D-06 to determine FMVSS 214 Side Impact Protection compliance. This test was conducted by Transportation Research Center Inc. in East Liberty, Ohio, on April 13, 2005.</p> <p>The impact velocity of the Moving Deformable Barrier (MDB) was 53.1 km/h, and the ambient temperature at the struck (Driver's side) side of the target vehicle at the time of impact was 21° C. The target vehicle's post-test maximum crush was 197 mm at Level 2.</p> <p>The test or target vehicle's performance is given below:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>Front SID</u></th> <th></th> <th style="text-align: center;"><u>Rear SID</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td style="text-align: center;">33.1</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">34.2</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td style="text-align: center;">37.6</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">35.0</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td style="text-align: center;">53.6</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">43.2</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Thoracic Trauma Index, (TTI):</td> <td style="text-align: center;">45.6</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">39.0</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td style="text-align: center;">58.3</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">46.2</td> <td style="text-align: center;">g's</td> </tr> </tbody> </table> <p>The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during side impact event.</p>					<u>Front SID</u>		<u>Rear SID</u>		Left Upper Rib Acceleration:	33.1	g's	34.2	g's	Left Lower Rib Acceleration:	37.6	g's	35.0	g's	Lower Spine Acceleration:	53.6	g's	43.2	g's	Thoracic Trauma Index, (TTI):	45.6	g's	39.0	g's	Pelvis Acceleration (PEV):	58.3	g's	46.2	g's
	<u>Front SID</u>		<u>Rear SID</u>																														
Left Upper Rib Acceleration:	33.1	g's	34.2	g's																													
Left Lower Rib Acceleration:	37.6	g's	35.0	g's																													
Lower Spine Acceleration:	53.6	g's	43.2	g's																													
Thoracic Trauma Index, (TTI):	45.6	g's	39.0	g's																													
Pelvis Acceleration (PEV):	58.3	g's	46.2	g's																													
17. Key Words Compliance Testing Side Impact Protection FMVSS 214 Side Impact Dummy (SID)		18. Distribution Statement Copies of this report are available from: NHTSA Technical Information Services (TIS) Room 5108 (NPO-230), 400 Seventh Street, S.W. Washington, DC 20590 Telephone No. (202) 366-4946 Attn: Robert Hornicle																															
19. Security Classification (of this report) Unclassified	20. Security Classification (of this page) Unclassified	21. Number of Pages 303	22. Price																														

Table of Contents

<u>Section</u>	<u>Description</u>	<u>Page No.</u>
1	Purpose and Test Procedure	1-1
2	Summary of Side Impact Test	2-1
3	Summary of Test Results	3-1
	Data Sheet 1 - General Vehicle Test Parameter Data	3-2
	Data Sheet 2 - Test Vehicle Summary of Results	3-5
	Data Sheet 3 - Moving Deformable Barrier (MDB) Summary	3-6
	Data Sheet 4 - Post-Test Observations	3-7
4	Occupant and Vehicle Information	4-1
	Data Sheet 5 - SID Instrumentation Data	4-2
	Data Sheet 6 - Vehicle Pre-Test And Post-Test Measurements	4-4
	Data Sheet 7 - SID Longitudinal Clearance Dimensions	4-5
	Data Sheet 8 - SID Lateral Clearance Dimensions	4-6
	Data Sheet 9 - Vehicle Side Measurements	4-7
	Data Sheet 10 - Vehicle Exterior Crush Profiles - All Levels	4-8
	Data Sheet 11 - Vehicle Damage Profile Distances	4-10
	Data Sheet 12 - Exterior Static Crush For Impactor Face	4-11
	Data Sheet 13 - Test Vehicle Accelerometer Locations and Data Summary	4-21
	Data Sheet 14 - MDB Accelerometer Locations and Data Summary	4-25
	Data Sheet 15 - High-Speed Camera Locations and Data	4-26
5	Vehicle Fuel System Integrity	5-1
	Data Sheet 16 - FMVSS 301 Fuel System Integrity Data	5-2
	Data Sheet 17 - FMVSS 301 Rollover Data	5-3
Appendix A	Photographs	A-1
Appendix B	Data Plots	B-1
Appendix C	Sid Configuration and Performance Verification Data	C-1
Appendix D	Test Equipment List and Calibration Information	D-1

Section 1

Purpose and Test Procedure

This side impact test is part of the FMVSS 214 Side Impact Protection Compliance Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-02-D-11114. The purpose of this test was to evaluate side impact protection in a 2005 Subaru Legacy 4-door. The test was conducted in accordance with the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-06, dated July 2001).

Section 2

Summary of Side Impact Test

A 2005 Subaru Legacy 4-door was impacted on the driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 53.1 km/h (33.0 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, Ohio on April 13, 2005. Pre-test and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (SIDs) are included in Appendix A.

Two restrained Side Impact Dummies (SIDs) were placed in the driver (Pos. #1) and left rear (Pos. #4) designated seating positions according to the instructions specified in the OVSC Side Impact Laboratory Test Procedure (TP-214D-06, dated July 2001). Both SIDs were certified prior to this test. The side impact test was documented by one real-time camera and 9 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SIDs were instrumented with the following accelerometers:

1. Left Upper Rib (LUR) uniaxial and redundant accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial and redundant accelerometer (Y-direction)
3. Lower Thoracic Spine (T₁₂) uniaxial and redundant accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial accelerometer (Y-direction)

A summary of the side impact dummy (SID) configuration and verification test data can be found in Appendix C. A total of 42 channels of data were recorded. Appendix B contains the vehicle, MDB, and dummy response data traces.

The following tables summarize the results of the test.

Injury Criteria	Front SID	Rear SID
TTI (g)	45.6	39.0
PEV (g)	58.3	46.2

Data Acquisition Explanations

The vehicle left lower A-post Y-axis acceleration data channel, LLAYG1, recorded questionable data throughout the test. The velocity was also affected.

The vehicle left middle A-post Y-axis acceleration data channel, LUAYG1, exceeded full-scale at approximately 20 milliseconds and recorded no useful data after that. The velocity was also affected.

The vehicle left lower B-post Y-axis acceleration data channel, LLBYG1, exceeded full-scale at approximately 22 milliseconds and recorded no useful data after that. The velocity was also affected.

The vehicle left middle B-post Y-axis acceleration data channel, LUBYG1, recorded questionable data throughout the test. The velocity was also affected.

Section 3

Summary of Test Results

Data Sheet 1

General Test Vehicle Parameter Data

Test Vehicle Information:

Vehicle Year/Make/Model: 2005 Subaru Legacy
Vehicle Body Style/Color: 4-door/Black VIN: 4S3BL616357
Vehicle NHTSA No.: C55500 Build Date: 06/04
Engine Data: 4 Cylinders; CID; 2.5 Liters; cc
Placement: X Longitudinal; or - Lateral; or - Horizontal
Transmission: 4 Speed; - Manual; X Automatic; - Overdrive
Final Drive: - RWD; - FWD; X Four-Wheel Drive
Odometer Reading: 100 miles
Options: X A/C; X Power steering; X Power brakes; X Power windows

Data From Vehicle's Tire Placard:

Tire Pressure (at capacity)* 220 kPa Front; 210 kPa Rear

Recommended Tire Size: P205/55R16

Tires on Test Vehicle: P205/55R16 Manufacturer: Bridgestone, Potenza

Vehicle Capacity Data:

Number of Occupants: 2 Front; 3 Rear; - 3rd seat; 5 Total
Type of Front Seats: X Bucket; - Bench; - Split bench
Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob
Vehicle Max. Capacity Loading = 385 kg (A)
No. of Occupants x 68.04 kg. = 340 kg (B)
Vehicle Cargo Capacity (A-B) = 45 kg

Test Vehicle Delivered Weight With Maximum Fluids:

Left Front	=	<u>417.5</u> kg	Left Rear	=	<u>333.0</u> kg
Right Front	=	<u>407.0</u> kg	Right Rear	=	<u>322.0</u> kg
Total Front	=	<u>824.5</u> kg	Total Rear	=	<u>655.0</u> kg
Front % of Total Weight	=	<u>55.7</u> %	Rear % of Total Weight	=	<u>44.3</u> %
Total Weight	=	<u>1479.5</u> kg			

* Tire pressure used in test.

Data Sheet 1 (Continued)

General Test Vehicle Parameter Data

Calculation Of Vehicle's Target Test Weight:

Total Test Vehicle Delivered Weight With Max. Fluids = 1479.5 kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle = 45.0 kg (B)
Weight of Instrumented Side Impact Dummies (2 X 83.0 kg) = 166.0 kg (C)
Test Vehicle Target Weight: = 1690.5 kg (A+B+C)

Fully Loaded Test Vehicle (UDW + 2 SID(s) + Cargo):

Left Front	=	<u>470.0</u> kg	Left Rear	=	<u>439.0</u> kg
Right Front	=	<u>409.5</u> kg	Right Rear	=	<u>380.0</u> kg
Total Front	=	<u>879.5</u> kg	Total Rear	=	<u>819.0</u> kg
Front % of Total Weight	=	<u>51.8</u> %	Rear % of Total Weight	=	<u>48.2</u> %
Total Weight	=	<u>1698.5</u> kg			

As Tested Weight of Test Vehicle (2 SID(s) + Cargo + Equipment & Instrumentation):

Left Front	=	<u>463.6</u> kg	Left Rear	=	<u>413.0</u> kg
Right Front	=	<u>428.8</u> kg	Right Rear	=	<u>379.6</u> kg
Total Front	=	<u>892.4</u> kg	Total Rear	=	<u>792.6</u> kg
Front % of Total Weight	=	<u>53.0</u> %	Rear % of Total Weight	=	<u>47.0</u> %
Total Weight	=	<u>1685.0</u> kg			

Test Vehicle Attitude (all dimensions in millimeters):

As Delivered	Fully Loaded	Ready For Test
Right Front <u>674</u>	Right Front <u>660</u>	Right Front <u>662</u>
Left Front <u>670</u>	Left Front <u>647</u>	Left Front <u>655</u>
Right Rear <u>666</u>	Right Rear <u>640</u>	Right Rear <u>649</u>
Left Rear <u>660</u>	Left Rear <u>625</u>	Left Rear <u>638</u>

Test Vehicle Wheelbase: 2670 mm

C.G. = 1255 mm rearward of front wheel centerline

Total Vehicle Length:

Right Side = 4500 mm
Left Side = 4500 mm
Centerline = 4725 mm

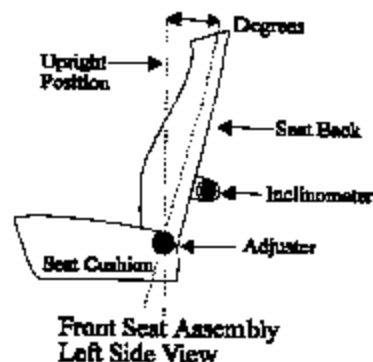
Data Sheet 1 (Continued)

General Test Vehicle Parameter Data

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Nominal Design Riding Position for adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.



Front Seat Cushion Placement: 10th detent rearward of full forward (Full forward is #0)

Total Length of Fore/Aft Adjustment Travel: 240 mm

Total Number of Adjustment Positions or Detents: 21

Front Seat Back Adjustment Position: The back was adjusted to 8th detent (Full forward is #1)

Seat Back Torso Angle: 10.8 degrees at head restraint post

Second Position Seat Placement: Fixed

Total Length Of Fore/Aft Adjustment Travel: N/A mm

Seat Back Adjustment Position: N/A

Adjustable Steering Column Position: Middle of geometric range of travel (25.9°)

Window Positions:

Right Front: Closed

Right Rear: Open

Left Front: Closed

Left Rear: Open

Note: Windows will be in closed position on struck side of test vehicle and in open position on opposite side.

Amount of Stoddard Solvent In Fuel Tank:

64.4 liters (fuel tank usable capacity)

59.8 liters used in test (92% - 94% of fuel tank usable capacity)

Location of Impact Point On Test Vehicle Side To Be Impacted:

Wheelbase = 2670 millimeters

Intended impact point is 395 millimeters rearward of front axle centerline
(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 420 millimeters rearward of front axle centerline

Data Sheet 2

Test Vehicle Summary of Results

Vehicle Year/Make/Model: 2005/Subaru/Legacy

Body Style: 4-door

VIN: 4S3BL616357206790

NHTSA No.: C55500

Build Date: 06/04

Test Date: 04/13/05

Vehicle Overall Length = 4725 mm

Overall Width = 1722 mm

Vehicle Test Weight (Pre-Test):

Left Front	=	<u>463.6</u>	kg	Left Rear	=	<u>413.0</u>	kg
Right Front	=	<u>428.8</u>	kg	Right Rear	=	<u>379.6</u>	kg
Total Front	=	<u>892.4</u>	kg	Total Rear	=	<u>792.6</u>	kg
Total Weight	=	<u>1685.0</u>	kg				
Wheelbase	=	<u>2670</u>	mm				

Longitudinal C.G. From Center Of Front Axle = 1255 mm

Impact Angle With Respect To Impactor = 90 degrees

Impact Point:

Actual Impact Point is 25 mm Right of nominal impact ref. line (Lateral)

Actual Impact Point is 1 mm Down from nominal impact point (Vertical)

Maximum Exterior Static Crush:

1. Level 1 (	<u>205</u>	mm above ground) =	<u>13</u>	mm
2. Level 2 (	<u>474</u>	mm above ground) =	<u>197</u>	mm
3. Level 3 (	<u>595</u>	mm above ground) =	<u>189</u>	mm
4. Level 4 (	<u>874</u>	mm above ground) =	<u>128</u>	mm
5. Level 5 (	<u>1320</u>	mm above ground) =	<u>26</u>	mm

Maximum Post-Test Intrusion = 197 mm

Occupants:

	<u>Driver</u>	<u>Rear Passenger</u>
Dummy Identification	<u>028</u>	<u>065</u>
Restraints Used	<u>3-pt. seat belt, side curtain and torso airbag</u>	<u>3-pt. seat belt, side curtain airbag</u>

Instrumentation:

Number of Vehicle Data Channels: = 21

Number of Cameras: Onboard = 3 Offboard = 6 Total = 9

Data Sheet 3

Moving Deformable Barrier (MDB) Summary

MDB Face Manufacturer And Serial Number:

Plascore. 219A1004. 239B1004

Position Of Impactor (MDB) On Monorail:

Crabbed 27° to the left

MDB Specifications:

Overall Width of Framework Carriage = 1251 mm
Overall Length of MDB (Incl. honeycomb impact face) = 4014 mm
Wheelbase of Framework Carriage = 2591 mm
Track of Framework Carriage (Front & Rear) = 1881 mm
C.G. Location Rearward of Front Axle = 1106 mm

MDB Weight:

Left Front = 468.2 kg Left Rear = 215.8 kg
Right Front = 313.0 kg Right Rear = 366.0 kg
Total Front = 781.2 kg Total Rear = 581.8 kg
Total MDB Weight = 1363.0 kg
Impact Angle (MDB C/L to Target Vehicle C/L) = 90 degrees
Impact Speed = 53.1 km/h

Maximum Static Crush of Honeycomb Impact Face:

1. Row A at Center of Bumper Level = 156 millimeters
2. Row B at Top of Bumper Level = 70 millimeters
3. Row C at Mid Level = 52 millimeters
4. Row D at Top of Stack Level = 85 millimeters

Instrumentation:

Number of MDB Data Channels = 5

Data Sheet 4

Post-Test Observations

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Visible Dummy Contact Points:

	<u>Left Front SID</u>	<u>Left Rear SID</u>
Head:	<u>Curtain airbag</u>	<u>D-pillar, curtain airbag,</u> <u>headliner</u>
Upper Torso:	<u>Torso airbag</u>	<u>C-pillar, door panel</u>
Lower Torso:	<u>Torso airbag</u>	<u>Door panel</u>
Left Knee:	<u>Door panel</u>	<u>Door panel</u>
Right Knee:	<u>None</u>	<u>None</u>

Door Opening:

	<u>Left Side</u>	<u>Right Side</u>
Front:	<u>Jammed and latched</u>	<u>Easy</u>
Rear:	<u>Jammed and latched</u>	<u>Easy</u>

MDB Distance From Target Impact Point:

Vertical: 1 mm down from target

Horizontal: 25 mm right from target

Arm Rest Locations:

Front: 270 mm below the bottom of the window

Rear: 265 mm below the bottom of the window

Seat Movement:

Front: None

Rear: None

Glazing Damage:

Windshield: No

Window: Left side windows broken

Pillar Separation: No

Sill Separation: No

Other Notable Impact Effects:

None

Section 4

Occupant and Vehicle Information

Data Sheet 5

SID Instrumentation Data

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Test Number: 050413

Driver Dummy Serial Number: 028

Location	Positive Direction		Negative Direction	
	Max.	Time (ms)	Max.	Time (ms)
Left Upper Rib Acceleration				
Lateral (P)	33.1	23.1	2.8	78.7
Lateral (R)	32.8	23.1	2.7	7.5
Left Lower Rib Acceleration				
Lateral (P)	37.6	23.8	3.5	90.0
Lateral (R)	37.1	23.8	3.7	90.0
Lower Spine Acceleration				
Lateral (P)	53.6	30.0	5.2	93.1
Lateral (R)	53.2	30.0	5.2	93.1
Pelvis Acceleration				
Lateral (P)	58.3	31.9	5.0	76.2
TTI	45.6			

Positive Direction

Longitudinal: Forward
Lateral: Rightward
Vertical: Downward

Negative Direction

Longitudinal: Rearward
Lateral: Leftward
Vertical: Upward

Data Sheet 5 (Continued)

SID Instrumentation Data

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Test Number: 050413

Rear Passenger Dummy Serial Number: 065

Location	Positive Direction		Negative Direction	
	Max.	Time (ms)	Max.	Time (ms)
Left Upper Rib Acceleration				
Lateral (P)	34.2	58.2	8.9	108.2
Lateral (R)	34.2	58.2	9.4	108.2
Left Lower Rib Acceleration				
Lateral (P)	35.0	57.5	19.2	98.2
Lateral (R)	35.0	57.5	21.3	98.7
Lower Spine Acceleration				
Lateral (P)	43.2	53.8	9.4	101.9
Lateral (R)	42.7	53.8	9.4	101.9
Pelvis Acceleration				
Lateral (P)	46.2	53.1	4.3	213.1
TTI	39.0			

Positive Direction

Longitudinal: Forward
Lateral: Rightward
Vertical: Downward

Negative Direction

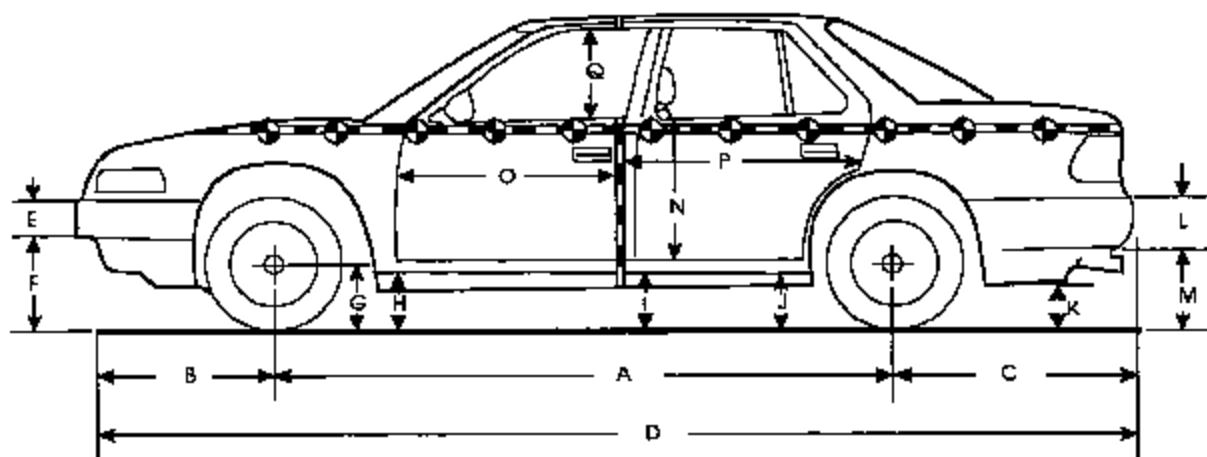
Longitudinal: Rearward
Lateral: Leftward
Vertical: Upward

Data Sheet 6

Vehicle Pre-Test And Post-Test Measurements

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500



Left Side View

Note: All dimensions are in millimeters with tolerance of ± 3 mm

	Pre-Test (as delivered)	Pre-Test (as tested)	Post-Test (as tested)	Change
A	2670	2670	2665	5
B	1000	1000	984	16
C	1055	1055	1054	1
D	4725	4725	4717	8
E	136	136	136	0
F	377	364	393	-29
G	295	298	298	0
H	220	202	233	-31
I	228	209	249	-40
J1	168	148	170	-22
J2	229	211	258	-47
K	272	246	266	-20
L	609	609	609	0
M	421	394	409	-15
N	712	712	671	41
O	751	751	755	-4
P	1287	1287	1198	89
Q	420	420	409	11
R	4500	4500	4496	4
S	4500	4500	4496	4
T	1290	1290	1222	68

D = Length at centerline
T = Width at B-pillar

E&L = Bumper Thickness
J1 = To Pinch Weld

R = Right Side Length
J2 = To Sill

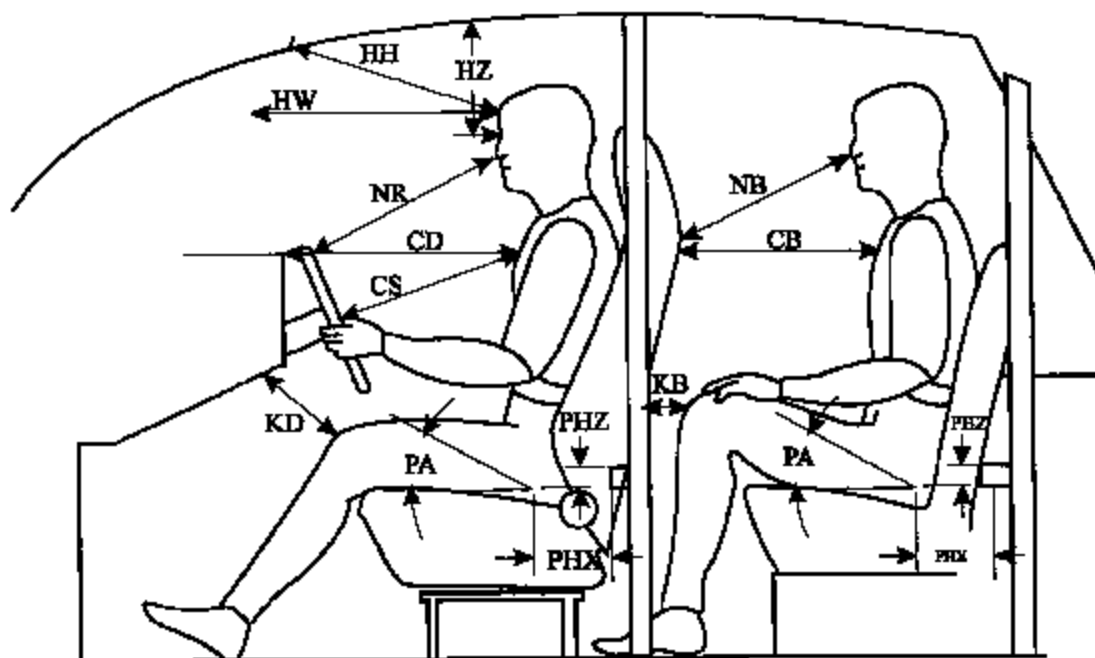
S = Left Side Length

Data Sheet 7

SID Longitudinal Clearance Dimensions

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500



Left Side View

Note: All measurements are in millimeters with tolerance of ± 3 mm

Measurement	Driver SID # 028	Left Rear Pass. SID # 065
HH	410	N/A
HW	625	N/A
HZ	190	130
NR/NB	495	650
CD/CB	550	550
CS	370	N/A
KDL(KDA°)/KBL(KBA°)	160/(0°)	190/(0°)
KDR(KDA°)/KBR(KBA°)	160/(0°)	190/(0°)
PA°	24.7°	24.8°
PHX	200	245
PHZ	105	275

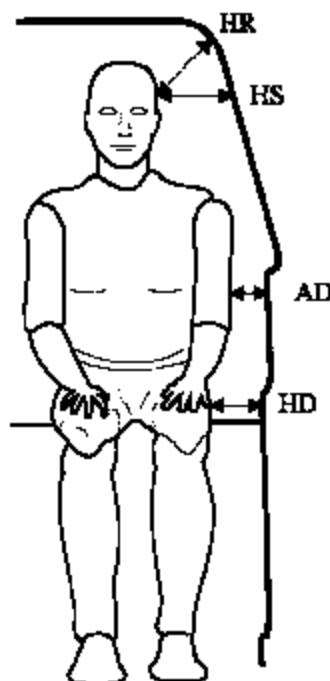
Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

Data Sheet 8

SID Lateral Clearance Dimensions

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500



Note: All measurements are in millimeters with tolerance of ± 3 mm

Measurement	Driver SID # 028	Left Rear Pass. SID # 065
HR	220	180
HS	310	330
AD*	Lower: 100 Upper: 90	Lower: 130 Upper: 90
HD	125	166

* Lower measurement is taken laterally at center of the lower rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

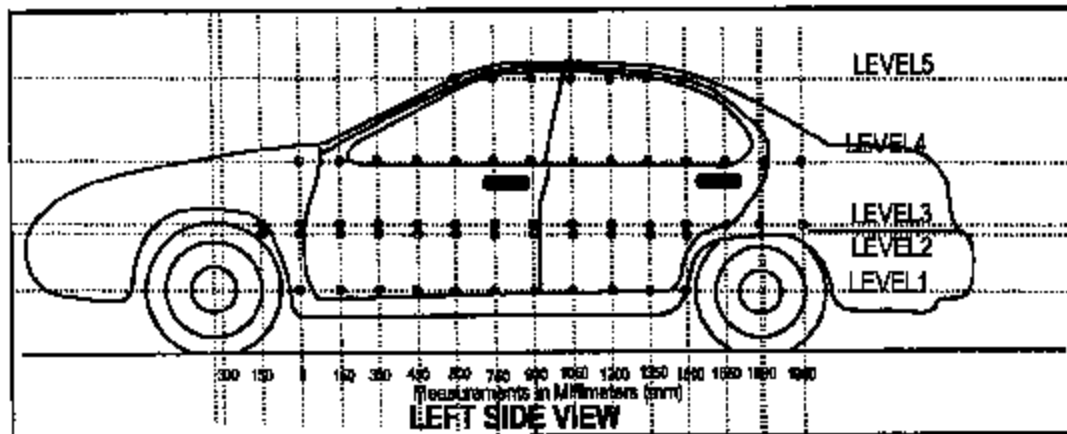
Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

Data Sheet 9

Vehicle Side Measurements

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500



Level 5 - Window Top

Level 4 - Window Sill

Level 3 - Mid-Door

Level 2 - Occupant H-Point

Level 1 - Axle Centerline Height or Sill Top Height

Measurements Are Taken When The Vehicle Is In The "As Tested" Configuration.

Measurements along the vertical 750 mm line shown above:

Level 5 @ Window Top	=	<u>1320</u>	mm
Level 4 @ Window Sill	=	<u>874</u>	mm
Level 3 @ Mid Door	=	<u>595</u>	mm
Level 2 @ Occupant H-Point	=	<u>474</u>	mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>205</u>	mm

Data Sheet 10

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Location	Height		(mm) From Impact Point													
			-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750
Level 1 Side Sill	205	Pre	---	---	---	---	---	---	---	---	---	688	690	691	690	690
		Post	---	---	---	---	---	---	---	---	---	692	698	700	703	703
		Crush	---	---	---	---	---	---	---	---	---	4	8	9	13	13
Level 2 H-Point	474	Pre	---	728	692	662	---	---	---	---	648	659	657	658	657	656
		Post	---	727	692	666	---	---	---	---	681	804	854	855	848	825
		Crush	---	-1	0	4	---	---	---	---	33	145	197	197	191	169
Level 3 Mid-Door	595	Pre	---	---	714	682	645	---	---	640	650	651	651	650	650	649
		Post	---	---	714	689	659	---	---	657	673	766	811	809	824	838
		Crush	---	---	0	7	14	---	---	17	23	115	160	159	174	189
Level 4 Window Sill	874	Pre	---	---	---	---	---	762	748	742	732	725	717	707	707	700
		Post	---	---	---	---	---	772	758	748	736	747	754	786	762	755
		Crush	---	---	---	---	---	10	10	6	4	22	37	79	55	55
Level 5 Window Top	1320	Pre	---	---	---	---	---	---	---	---	---	---	---	---	---	944
		Post	---	---	---	---	---	---	---	---	---	---	---	---	---	959
		Crush	---	---	---	---	---	---	---	---	---	---	---	---	---	15

4-8

050413

Data Sheet 10 (Continued)

Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Location	Height		(mm) From Impact Point												
			900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700
Level 1 Side Sill	205	Pre	690	690	690	690	690	685	680	---	---	---	---	---	---
		Post	703	701	698	703	699	695	685	---	---	---	---	---	---
		Crush	13	11	8	13	9	10	5	---	---	---	---	---	---
Level 2 H-Point	474	Pre	655	653	653	652	652	651	650	643	---	---	---	---	659
		Post	822	822	814	825	829	830	819	669	---	---	---	---	665
		Crush	167	169	161	173	177	179	169	26	---	---	---	---	6
Level 3 Mid-Door	595	Pre	648	646	645	645	645	645	645	642	---	---	---	640	663
		Post	811	798	793	800	812	828	830	731	---	---	---	649	673
		Crush	163	152	148	155	167	183	185	89	---	---	---	9	10
Level 4 Window Sill	874	Pre	693	690	683	680	678	680	678	677	679	682	686	700	714
		Post	753	753	778	804	806	795	764	727	698	700	704	710	720
		Crush	60	63	95	124	128	115	86	50	19	18	18	10	6
Level 5 Window Top	1320	Pre	928	927	923	924	924	926	935	945	---	---	---	---	---
		Post	944	948	949	943	940	948	953	963	---	---	---	---	---
		Crush	16	21	26	19	16	22	18	18	---	---	---	---	---

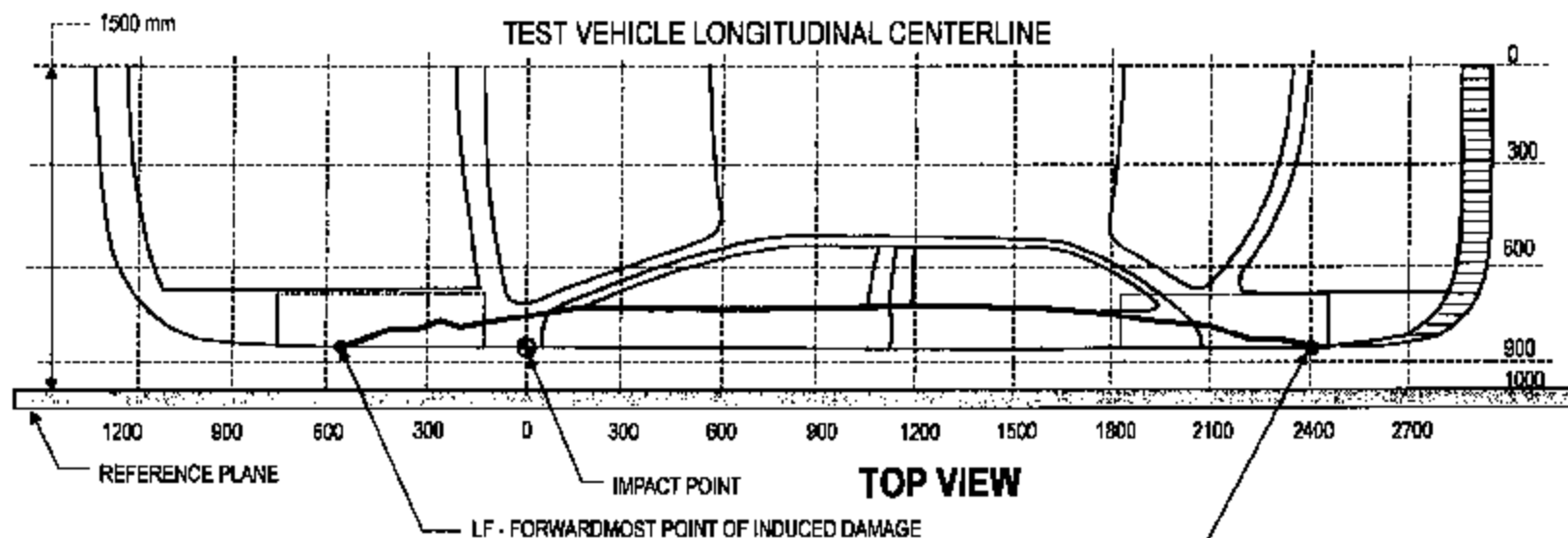
Data Sheet 11

Vehicle Damage Profile Distances

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

NOTE: All measurements are in millimeters (mm) and should be accurate to plus or minus 3mm.



MEASUREMENT CONVENTIONS:

Forward of the impact point (towards front of vehicle) is considered negative (-)

Rearward of the impact point (towards rear end of vehicle) is considered positive (+)

DPD Measurements	Post-Test (mm)	Pre-Test (mm)	Static Crush (mm)
6: LF = -150 mm (Level 3)	657	640	17
5: 300 mm (Level 2)	854	657	197
4: 750 mm (Level 3)	838	649	189
3: 1200 mm (Level 2)	814	653	161
2: 1650 mm (Level 3)	828	645	183
1: LR = 1950 mm (Level 3)	731	642	89

Full length of induced damage was 2100 mm.

4-10

050413

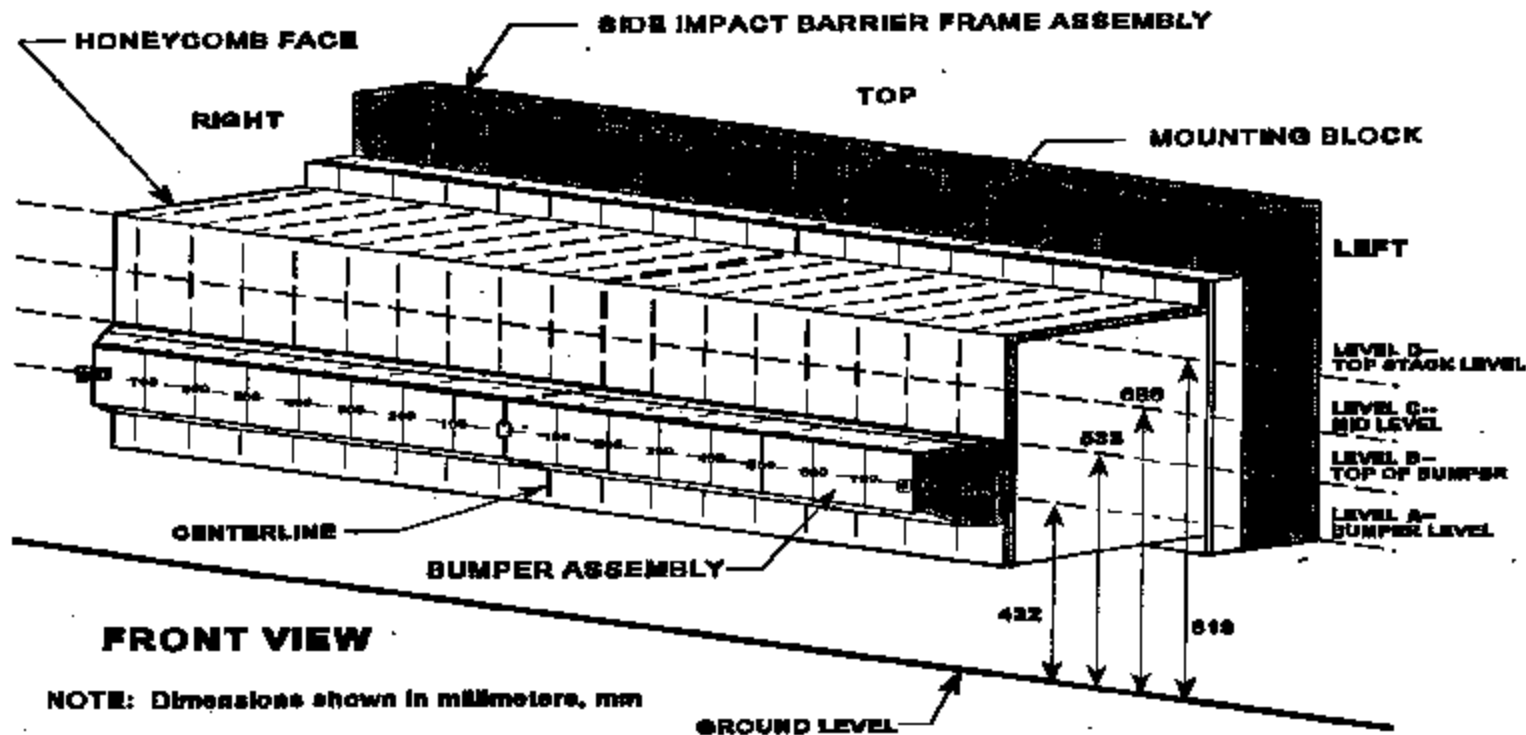
Data Sheet 12

Exterior Static Crush For Impactor Face

(Grid as looking at MDB from front)

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500



4-11

FRONT VIEW

NOTE: Dimensions shown in millimeters, mm

050413

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Exterior Static Crush For Impactor Face

Location	Height At CL	Distance Right of Center (mm)									Distance Left of Center (mm)							
		800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
Top Stack Level - Level D	814	-42	-12	9	2	-8	-24	-56	-51	-40	-29	-27	-28	-34	-34	-33	-46	-85
Mid Level Level C	685	-17	0	0	-3	-7	-20	-49	-42	-18	-7	-4	-3	-5	-8	-12	-22	-52
Top Bumper Level-Level B ¹	560	-70	-64	-61	-60	-59	-57	-57	-53	-47	-41	-37	-34	-30	-29	-28	-31	-40
Mid Bumper Level - Level A	432	-156	-146	-135	-128	-123	-129	-126	-114	-99	-86	-78	-72	-67	-63	-59	65	-85

All measurements are in millimeters and have a tolerance of ± 3 mm.

¹Top bumper measurement points are at 560 mm to avoid bumper element interference post-test.

4-12

050413

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Deformable Barrier Face Profile

Level D - Top Stack

Pre-Test

Index	Xmm	Ymm	Zmm
1	-384	800	-47
2	-383	701	-47
3	-384	601	-47
4	-384	501	-48
5	-384	402	-47
6	-384	302	-48
7	-384	200	-48
8	-384	101	-49
9	-384	1	-49
10	-384	-99	-49
11	-384	-199	-49
12	-384	-299	-48
13	-383	-400	-49
14	-383	-499	-49
15	-383	-599	-50
16	-382	-699	-50
17	-382	-799	-51

Post-Test

Index	Xmm	Ymm	Zmm
1	-341	762	-92
2	-371	667	-89
3	-393	570	-89
4	-386	471	-89
5	-376	372	-88
6	-360	272	-89
7	-328	176	-90
8	-333	79	-89
9	-344	-20	-84
10	-355	-119	-80
11	-357	-219	-81
12	-356	-317	-77
13	-349	-417	-76
14	-349	-516	-70
15	-350	-616	-65
16	-336	-714	-61
17	-297	-805	-63

Difference

Index	Xmm	Ymm	Zmm
1	-42	38	45
2	-12	33	42
3	9	31	41
4	2	30	41
5	-8	30	41
6	-24	29	41
7	-56	24	41
8	-51	22	40
9	-40	22	36
10	-29	20	31
11	-27	20	31
12	-28	18	29
13	-34	18	26
14	-34	17	21
15	-33	17	15
16	-46	15	10
17	-85	6	13

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Deformable Barrier Face Profile Cont'd.

Level C - Mid Level

Pre-Test

Index	Xmm	Ymm	Zmm
18	-384	801	-176
19	-384	701	-175
20	-384	602	-176
21	-384	501	-176
22	-384	402	-176
23	-384	302	-177
24	-384	201	-177
25	-384	101	-177
26	-384	1	-178
27	-384	-99	-178
28	-384	-198	-178
29	-383	-299	-178
30	-383	-399	-178
31	-383	-498	-178
32	-383	-598	-179
33	-382	-699	-179
34	-382	-798	-179

Post-Test

Index	Xmm	Ymm	Zmm
18	-366	768	-215
19	-384	670	-216
20	-384	571	-218
21	-381	470	-217
22	-377	371	-217
23	-363	272	-217
24	-335	176	-217
25	-342	75	-215
26	-366	-22	-210
27	-377	-122	-207
28	-379	-222	-203
29	-380	-321	-199
30	-379	-422	-196
31	-376	-522	-193
32	-370	-622	-190
33	-360	-722	-187
34	-330	-815	-186

Difference

Index	Xmm	Ymm	Zmm
18	-17	33	39
19	0	30	40
20	0	31	42
21	-3	30	41
22	-7	30	41
23	-20	30	40
24	-49	26	41
25	-42	26	38
26	-18	23	33
27	-7	23	29
28	-4	23	25
29	-3	23	22
30	-5	24	18
31	-8	24	15
32	-12	24	11
33	-22	23	8
34	-52	17	7

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Deformable Barrier Face Profile Cont'd.

Level B - Top of Bumper
Pre-Test

Index	Xmm	Ymm	Zmm
35	-384	803	-300
36	-384	702	-301
37	-384	601	-301
38	-384	501	-302
39	-384	400	-302
40	-384	302	-301
41	-384	202	-301
42	-384	102	-302
43	-384	2	-302
44	-384	-97	-303
45	-383	-198	-303
46	-383	-298	-303
47	-383	-398	-303
48	-383	-498	-304
49	-383	-598	-304
50	-383	-698	-304
51	-383	-798	-304

Post-Test

Index	Xmm	Ymm	Zmm
35	-314	773	-307
36	-320	671	-312
37	-323	570	-312
38	-324	470	-314
39	-325	370	-316
40	-327	271	-317
41	-327	172	-319
42	-331	73	-318
43	-336	-27	-318
44	-342	-126	-319
45	-346	-227	-318
46	-349	-327	-316
47	-353	-426	-314
48	-353	-526	-313
49	-354	-626	-311
50	-351	-727	-309
51	-343	-826	-306

Difference

Index	Xmm	Ymm	Zmm
35	-70	30	7
36	-64	31	11
37	-61	31	11
38	-60	31	12
39	-59	30	14
40	-57	30	15
41	-57	29	18
42	-53	29	16
43	-47	29	16
44	-41	29	17
45	-37	29	15
46	-34	28	14
47	-30	28	12
48	-29	28	9
49	-28	28	7
50	-31	28	5
51	-40	28	2

Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Deformable Barrier Face Profile Cont'd.

Level A - Mid Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
52	-475	800	-428
53	-486	702	-427
54	-486	603	-428
55	-486	503	-428
56	-486	402	-429
57	-486	303	-429
58	-486	202	-430
59	-486	102	-430
60	-486	3	-430
61	-486	-98	-430
62	-486	-197	-431
63	-486	-297	-432
64	-486	-397	-432
65	-486	-497	-432
66	-485	-597	-432
67	-485	-698	-433
68	-475	-796	-432

Post-Test

Index	Xmm	Ymm	Zmm
52	-320	770	-449
53	-340	673	-453
54	-352	573	-455
55	-358	474	-455
56	-364	373	-453
57	-358	274	-448
58	-361	174	-446
59	-373	75	-447
60	-387	-23	-447
61	-400	-124	-447
62	-408	-222	-447
63	-414	-322	-447
64	-419	-422	-447
65	-423	-521	-447
66	-426	-622	-447
67	-420	-722	-445
68	-390	-816	-441

Difference

Index	Xmm	Ymm	Zmm
52	-156	30	21
53	-146	30	26
54	-135	29	27
55	-128	29	26
56	-123	29	24
57	-129	28	19
58	-126	28	16
59	-114	27	16
60	-99	26	17
61	-86	26	16
62	-78	25	16
63	-72	25	16
64	-67	24	15
65	-63	24	15
66	-59	25	14
67	-65	24	13
68	-85	21	9

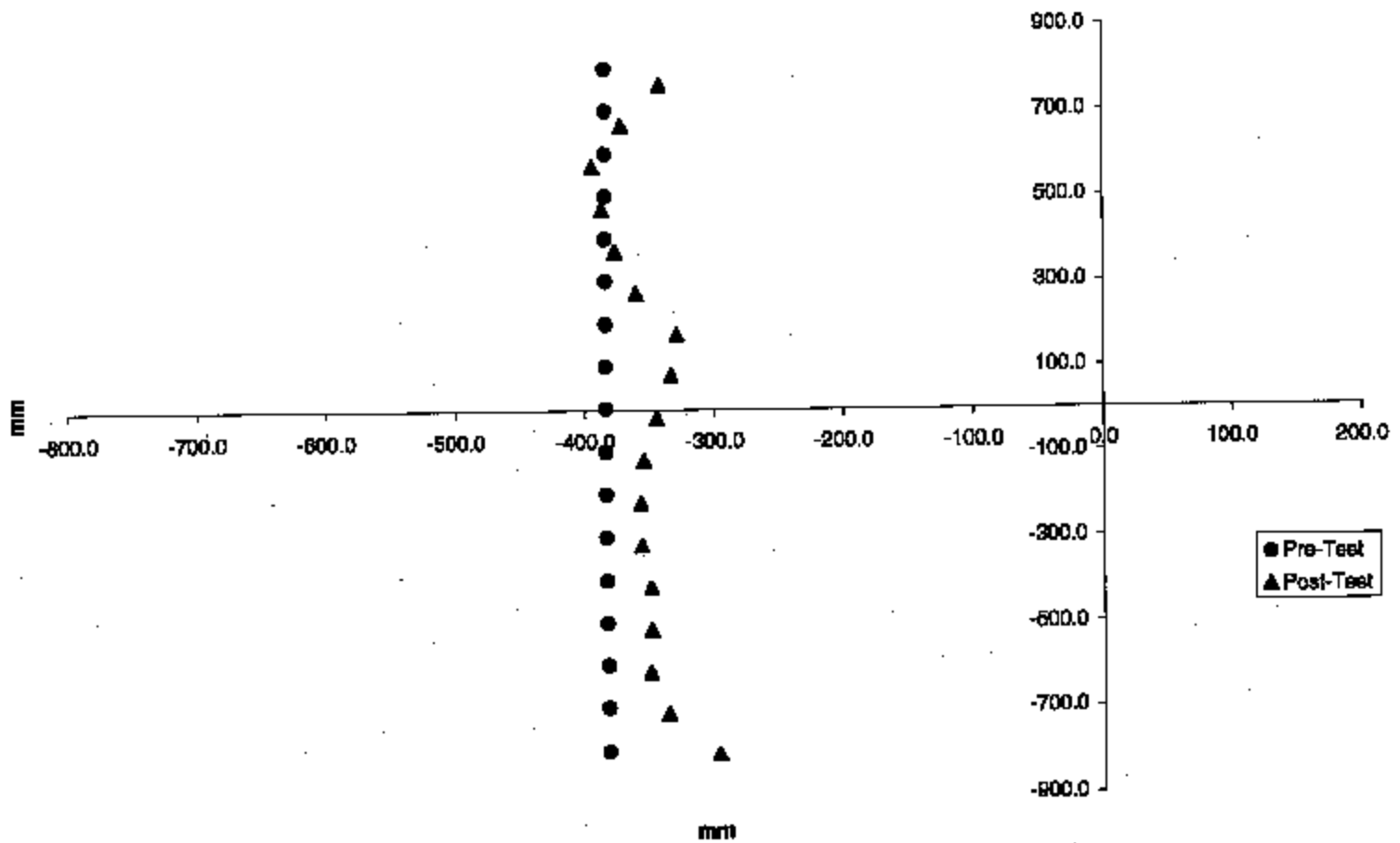
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Level D - Deformable Barrier Face Profile 1-17



4-17

050413

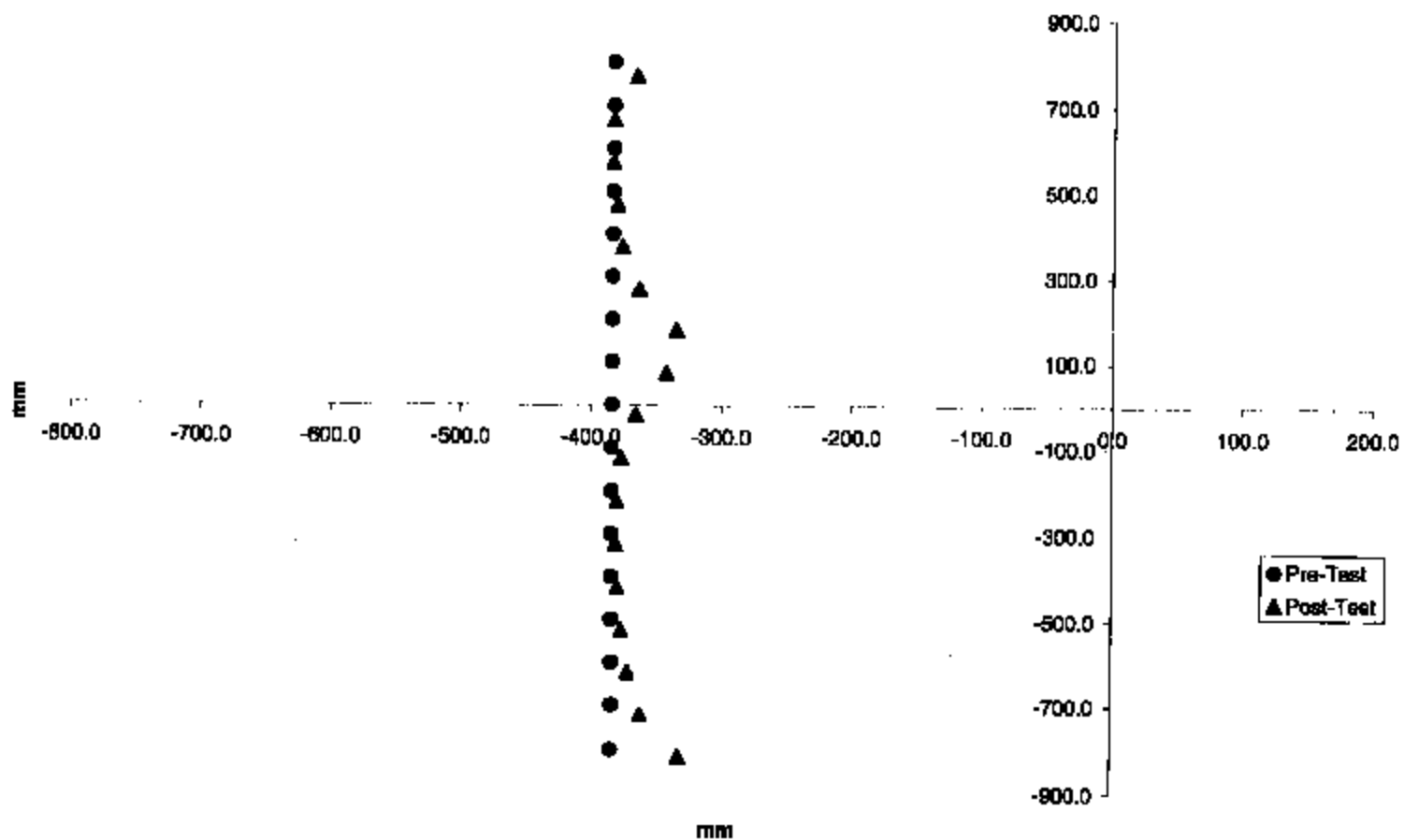
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Level C - Deformable Barrier Face Profile 18-34



4-18

050413

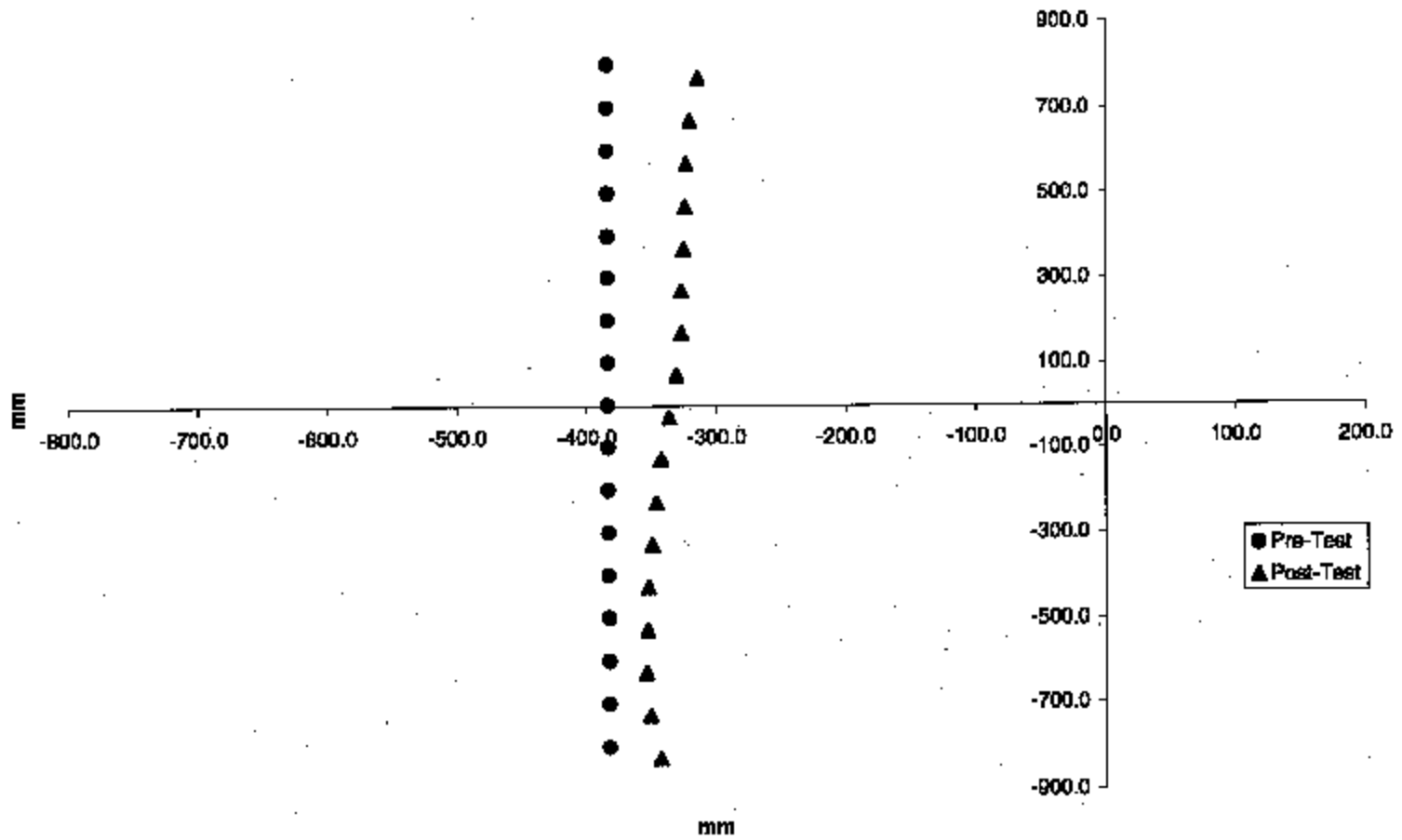
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Level B - Deformable Barrier Face Profile 35-51



4-19

050413

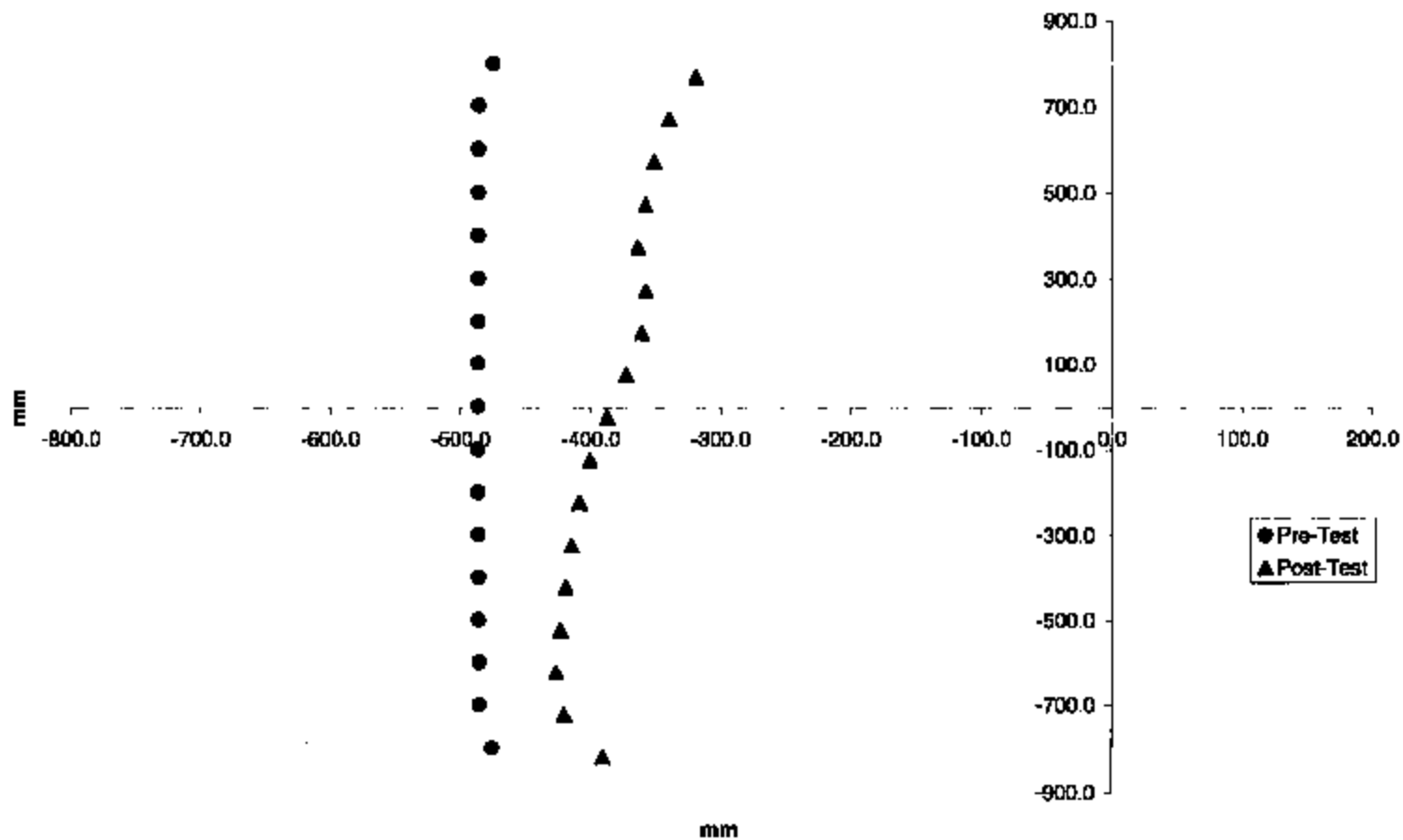
Data Sheet 12 (Continued)

Exterior Static Crush For Impactor Face

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Level A - Deformable Barrier Face Profile 52-68



4-20

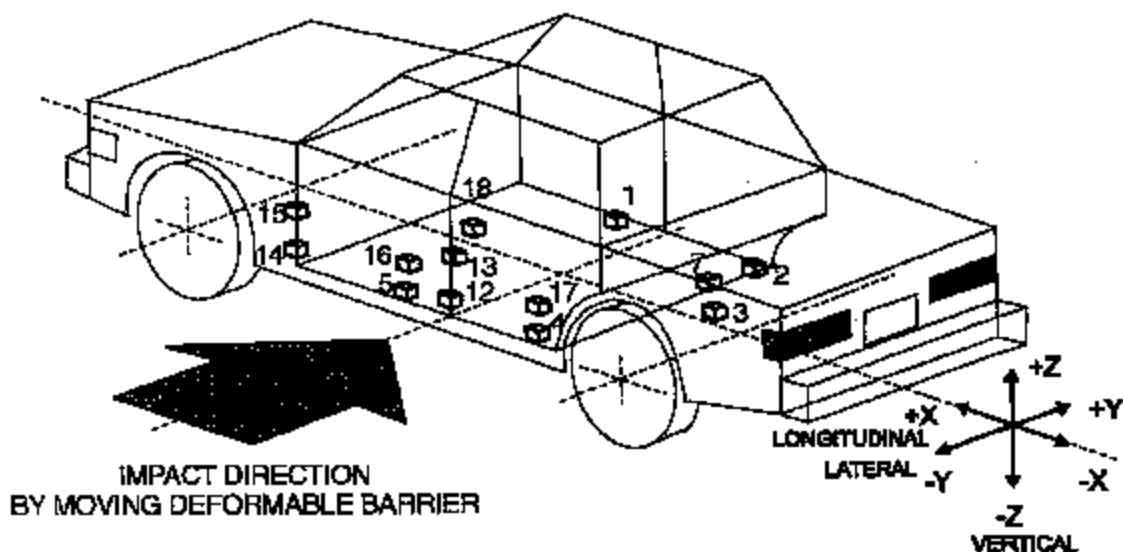
050413

Data Sheet 13

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500



- 1-Right Front Side Sill
- 2-Right Side Sill at Rear Seat
- 3-Rear Floorpan above Axle
- 4-Left Side Sill at Rear Seat
- 5-Left Front Side Sill
- 7-Right Rear Occupant Compartment
- 12-Left Side Lower B-pillar

- 13-Left Side Middle B-pillar
- 14-Left Side Lower A-pillar
- 15-Left Side Middle A-pillar
- 16-Left Side Front Seat Track at H-point
- 17-Left Rear Seat Track at H-point
- 18-Vehicle Center of Gravity

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Location				Positive Direction		Negative Direction	
	X	Y	Z	Max.	Time (ms)	Max.	Time (ms)
1 Right Side Sill at Front Seat							
	2815	665	-255				
Longitudinal				4.4	56.2	3.0	10.7
Lateral				25.4	7.5	4.4	79.8
Vertical				2.7	102.5	7.4	9.8
Resultant				25.8	7.6		
2 Right Side Sill at Rear Seat							
	1902	660	-235				
Longitudinal				4.1	55.8	3.6	21.5
Lateral				23.5	7.3	5.4	80.3
Vertical				2.9	29.7	3.9	17.7
Resultant				23.6	7.3		
3 Rear Floorpan Above Axle							
	1085	0	-537				
Longitudinal				6.3	52.9	2.8	11.9
Lateral				25.8	41.0	4.4	81.1
Vertical				8.3	30.6	4.6	14.2
Resultant				25.8	41.0		
4 Left Side Sill at Rear Seat							
	1901	-660	-195				
Longitudinal							
Lateral				34.5	5.4	4.0	125.8
Vertical							
Resultant							
5 Left Side Sill at Front Seat							
	2815	-665	-277				
Longitudinal							
Lateral				70.6	4.5	44.9	26.1
Vertical							
Resultant							

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Location				Positive Direction		Negative Direction	
	X	Y	Z	Max.	Time (ms)	Max.	Time (ms)
7 Right Rear Occupant Compartment	1815	640	-330				
Longitudinal							
Lateral				19.0	7.1	4.4	80.5
Vertical							
Resultant							
12 Left Lower B-Pillar	2178	-700	-536				
Longitudinal							
Lateral ¹				---	---	---	---
Vertical							
Resultant							
13 Left Middle B-Pillar	2150	-700	-800				
Longitudinal							
Lateral ¹				---	---	---	---
Vertical							
Resultant							
14 Left Lower A-Pillar	3205	-683	-446				
Longitudinal							
Lateral ¹				---	---	---	---
Vertical							
Resultant							
15 Left Middle A-Pillar	3200	-685	-779				
Longitudinal							
Lateral ¹				---	---	---	---
Vertical							
Resultant							

Data Sheet 13 (Continued)

Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

Location				Positive Direction		Negative Direction	
	X	Y	Z	Max.	Time (ms)	Max.	Time (ms)
16 Left Front Seat Track	2415	-665	-423				
Longitudinal							
Lateral				47.8	5.0	18.8	9.4
Vertical							
Resultant							
17 Left Rear Seat Track	1560	-610	-423				
Longitudinal							
Lateral				32.0	6.1	2.4	79.7
Vertical							
Resultant							
18 Vehicle CG	2670	0	-542				
Longitudinal				6.7	8.3	9.8	38.0
Lateral				41.7	23.7	14.1	30.4
Vertical				18.3	34.7	15.6	30.6
Resultant				42.2	24.0		

Reference: X: + Forward from rear bumper
 Y: + Rightward from vehicle centerline
 Z: + Downward from ground level

For acceleration data sign convention see Report Sign Convention in Appendix D.

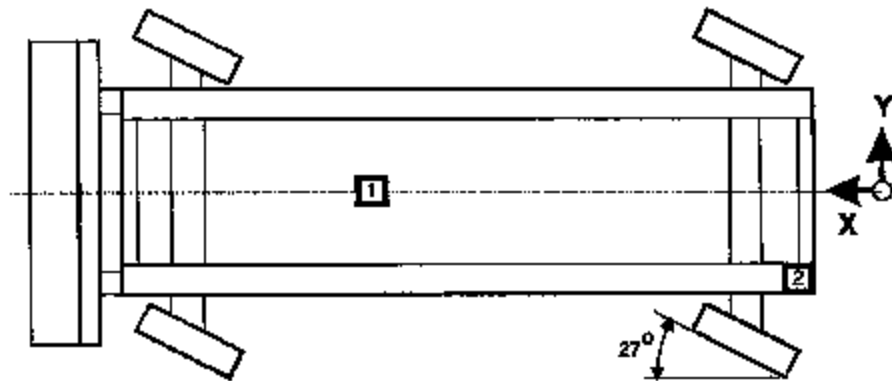
¹ See Data Acquisition Explanations

Data Sheet 14

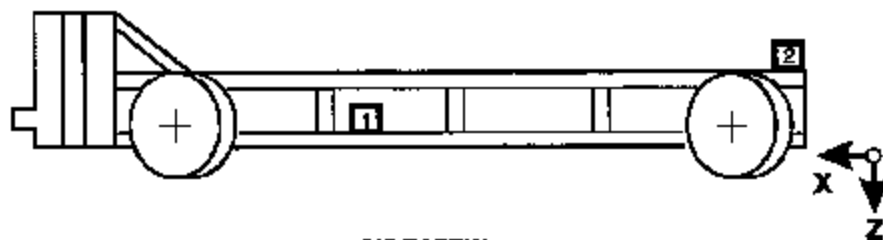
MDB Accelerometer Locations and Data Summary

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500



TOP VIEW



SIDE VIEW

Accel. No.	Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
		X*	Y*	Z*	Max. (g)	Time (ms)	Max. (g)	Time (ms)
1	MDB Center of Gravity	1855	0	-520				
	Longitudinal X				1.6	97.0	20.0	34.1
	Lateral Y				3.0	61.4	8.8	39.7
	Vertical Z				6.3	29.3	7.7	20.2
	Resultant R				21.3	34.2		
2	Rear Frame Member	412	-677	-625				
	Longitudinal X				2.2	84.2	23.5	39.9
	Lateral Y				1.9	37.8	3.7	57.1

*Reference: X = Rear Bumper (+ Forward)

Y = Vehicle Centerline (+ To Right)

Z = Ground Level (+ Down)

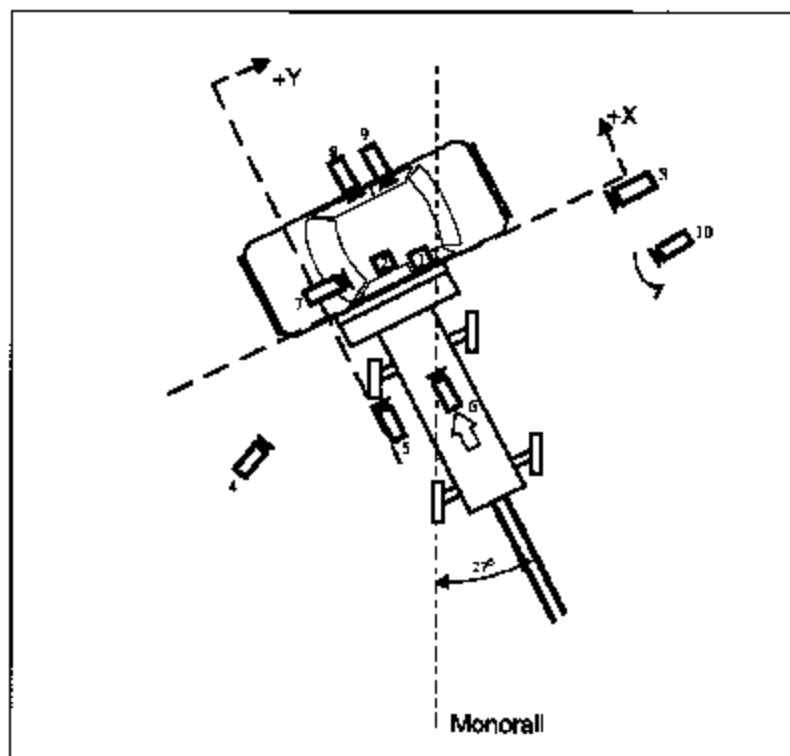
All measurements accurate to within ± 3 mm.

Data Sheet 15

High-Speed Camera Locations and Data Summary

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500



Impact
Area

Camera Number	Location	Location, mm			Angle (deg.)	Lens (mm)	Speed (fps)
		X	Y	Z			
1	Overhead wide	250	2150	-5750	-77.5	20	1000
2	Overhead tight	370	1800	-5750	-85.5	50	1000
3	Right side of MDB	510	8200	-960	-1.5	25	1000
4	Left side of MDB	-2010	-5360	-999	-4.8	12.5	1000
5	Onboard MDB left side	-1750	-40	-720	-0.5	13	1000
6	Onboard MDB center	-2480	830	-1353	-5.2	17	1000
7	Onboard vehicle front	495	-360	-1211	-4.3	12.5	1000
8	Onboard side front door	1610	640	-1068	-78.9	12.5	1000
9	Onboard side rear door	1610	1320	-1106	-12.8	12.5	1000
10	Real-time Panning-Video	N/A	N/A	N/A	N/A	Zoom	30
11	Post-test Documentary	N/A	N/A	N/A	N/A	Zoom	30

+X: Forward (referenced to MDB) from impact point

+Y: Rightward (referenced to MDB) from impact point

+Z: Downward from ground level

Section 5

Vehicle Fuel System Integrity

Data Sheet 16

FMVSS 301 Fuel System Integrity Data

NHTSA No.: C55500

Test Date: 04/13/05

Vehicle Year/Make/Model/Body Style: 2005 Subaru Legacy 4-door

Test Vehicle Impact Type :

- Frontal (48.3 km/h)
- Oblique (48.3 km/h) with ___° barrier
face first contacting the (driver/passenger) side
- Rear Moving Barrier (48.3 km/h)
- Lateral Moving Barrier (32.2 km/h)
- Side Impact Moving Deformable Barrier
(53.1 km/h) contacting the Driver's side

Fuel Spillage Measurement:

1. From impact until vehicle motion ceases
2. For five-minute period after vehicle motion ceases
3. For next 25 minutes.

Actual	Maximum Allowed
0 g	28 g
0 g	142 g
0 g	28 g/1 minute

Solvent Spillage Details :

None

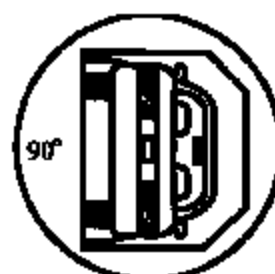
Data Sheet 17

FMVSS 301 Rollover Data

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

0 - 90 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time	<u> 1 </u> minutes	<u> 30 </u> seconds
(Spec. Range = 1 to 3 minutes)		
FMVSS 301 Position Hold Time +	<u> 5 </u> minutes	<u> 0 </u> seconds
Total	<u> 6 </u> minutes	<u> 30 </u> seconds
Next whole minute interval	<u> 7 </u> minutes	

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

90 - 180 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time	<u>1</u> minutes	<u>30</u> seconds
(Spec. Range = 1 to 3 minutes)		
FMVSS 301 Position Hold Time +	<u>5</u> minutes	<u>0</u> seconds
Total	<u>6</u> minutes	<u>30</u> seconds
Next whole minute interval	<u>7</u> minutes	

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

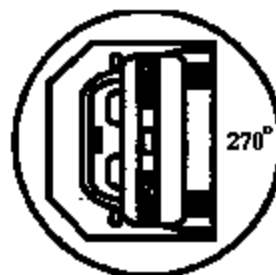
Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

180 - 270 Degrees



1. Determination of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time 1 minutes 30 seconds
(Spec. Range = 1 to 3 minutes)
FMVSS 301 Position Hold Time + 5 minutes 0 seconds
Total 6 minutes 30 seconds
Next whole minute interval 7 minutes

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

Data Sheet 17 (Continued)

FMVSS 301 Rollover Data

Vehicle: 2005 Subaru Legacy 4-door

NHTSA No.: C55500

270 - 360 Degrees



1. Determination Of Solvent Collection Time Period:

Rollover Fixture 90° Rotation Time 1 minutes 30 seconds
(Spec. Range = 1 to 3 minutes)
FMVSS 301 Position Hold Time + 5 minutes 0 seconds
Total 6 minutes 30 seconds
Next whole minute interval 7 minutes

2. FMVSS 301 Requirements:

(1) Time Period

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
--	----------	----------	------------------------

(2) Maximum Allowable Solvent Spillage

142 g	28 g	28 g	28 g
-------	------	------	------

3. Actual Test Vehicle Solvent Spillage:

0 g	0 g	0 g	N/A
-----	-----	-----	-----

Note: Record spillage for whole minute intervals only as determined above.

4. Solvent Spillage Location(s):

None

Appendix A

Photographs

List of Photographs

<u>Figure</u>	<u>Description</u>	<u>Page</u>
Figure A-1	Pre-Test Front View of Test Vehicle	A-5
Figure A-2	Post-Test Front View of Test Vehicle	A-6
Figure A-3	Pre-Test Impacted Side View of Test Vehicle	A-7
Figure A-4	Post-Test Impacted Side View of Test Vehicle	A-8
Figure A-5	Pre-Test Rear View of Test Vehicle	A-9
Figure A-6	Post-Test Rear View of Test Vehicle	A-10
Figure A-7	Pre-Test Non-Struck Side View of Test Vehicle	A-11
Figure A-8	Post-Test Non-Struck Side View of Test Vehicle	A-12
Figure A-9	Pre-Test Frontal View of Impactor Face	A-13
Figure A-10	Post-Test Frontal View of Impactor Face	A-14
Figure A-11	Pre-Test Left Side View of Impactor Face	A-15
Figure A-12	Post-Test Left Side View of Impactor Face	A-16
Figure A-13	Pre-Test Right Side View of Impactor Face	A-17
Figure A-14	Post-Test Right Side View of Impactor Face	A-18
Figure A-15	Pre-Test Top View of Impactor Face	A-19
Figure A-16	Post-Test Top View of Impactor Face	A-20
Figure A-17	Pre-Test View of MDB Showing Contact Switches in Place	A-21
Figure A-18	Post-Test View of MDB Showing Contact Switches in Place	A-22
Figure A-19	Pre-Test Overhead View of MDB Aligned with Vehicle	A-23
Figure A-20	Post-Test Overhead View of Vehicle	A-24
Figure A-21	Pre-Test Right Occupant Compartment View of Front SID	A-25
Figure A-22	Post-Test Right Occupant Compartment View of Front SID	A-26
Figure A-23	Pre-Test Right Occupant Compartment View of Rear SID	A-27
Figure A-24	Post-Test Right Occupant Compartment View of Rear SID	A-28
Figure A-25	Pre-Test Left View of Front SID	A-29
Figure A-26	Post-Test Left View of Front SID	A-30
Figure A-27	Pre-Test Left View of Front SID and Belt Position	A-31
Figure A-28	Pre-Test View of Front SID and Door Clearance	A-32

List of Photographs, Cont'd.

<u>Figure</u>	<u>Description</u>	<u>Page</u>
Figure A-29	Post-Test View of Front SID and Door Clearance	A-33
Figure A-30	Pre-Test Left View of Rear SID	A-34
Figure A-31	Post-Test Left View of Rear SID	A-35
Figure A-32	Pre-Test Left View of Rear SID and Belt Position	A-36
Figure A-33	Pre-Test View of Rear SID and Door Clearance	A-37
Figure A-34	Post-Test View of Rear SID and Door Clearance	A-38
Figure A-35	Pre-Test Interior of Front Door	A-39
Figure A-36	Post-Test Interior of Front Door Showing SID Impact Locations	A-40
Figure A-37	Post-Test Front SID Contact - View 1	A-41
Figure A-38	Post-Test Front SID Contact - View 2	A-42
Figure A-39	Post-Test Front SID Contact - View 3	A-43
Figure A-40	Pre-Test Interior of Rear Panel	A-44
Figure A-41	Post-Test Interior of Rear Panel Showing SID Impact Locations	A-45
Figure A-42	Post-Test Rear SID Contact - View 1	A-46
Figure A-43	Post-Test Rear SID Contact - View 2	A-47
Figure A-44	Post-Test Rear SID Contact - View 3	A-48
Figure A-45	Pre-Test Left Side View of MDB With Impactor Face in Position	A-49
Figure A-46	Post-Test Left Side View of MDB With Impactor Face in Position	A-50
Figure A-47	Pre-Test Primary Impact Point View	A-51
Figure A-48	Post-Test Primary Impact Point View	A-52
Figure A-49	Pre-Test Right Side View of MDB With Impactor Face in Position	A-53
Figure A-50	Post-Test Right Side View of MDB With Impactor Face in Position	A-54
Figure A-51	Pre-Test Secondary Impact Point View	A-55
Figure A-52	Post-Test Secondary Impact Point View	A-56
Figure A-53	Pre-Test Vehicle Certification Label View	A-57
Figure A-54	Pre-Test Vehicle Recommended Tire Pressure Label View	A-58
Figure A-55	Impact Event	A-59
Figure A-56	Pre-Test Fuel Cap View	A-60

List of Photographs, Cont'd.

<u>Figure</u>	<u>Description</u>	<u>Page</u>
Figure A-57	Post-Test Fuel Cap View	A-61
Figure A-58	FMVSS 301 Rollover View at 90°	A-62
Figure A-59	FMVSS 301 Rollover View at 180°	A-63
Figure A-60	FMVSS 301 Rollover View at 270°	A-64
Figure A-61	FMVSS 301 Rollover View at 360°	A-65

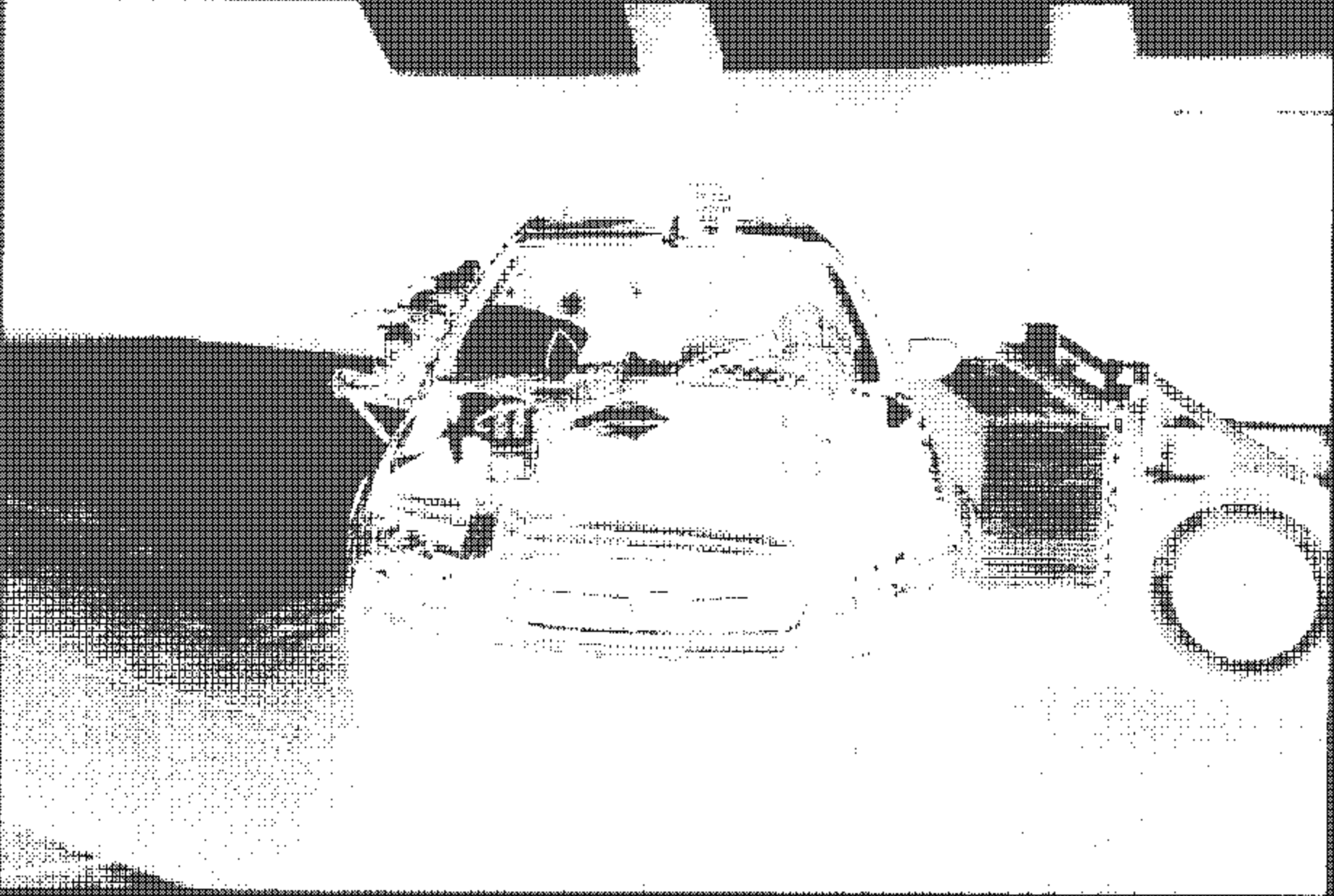


Figure A-1 Pre-Test Front View of Test Vehicle

A-5

050413

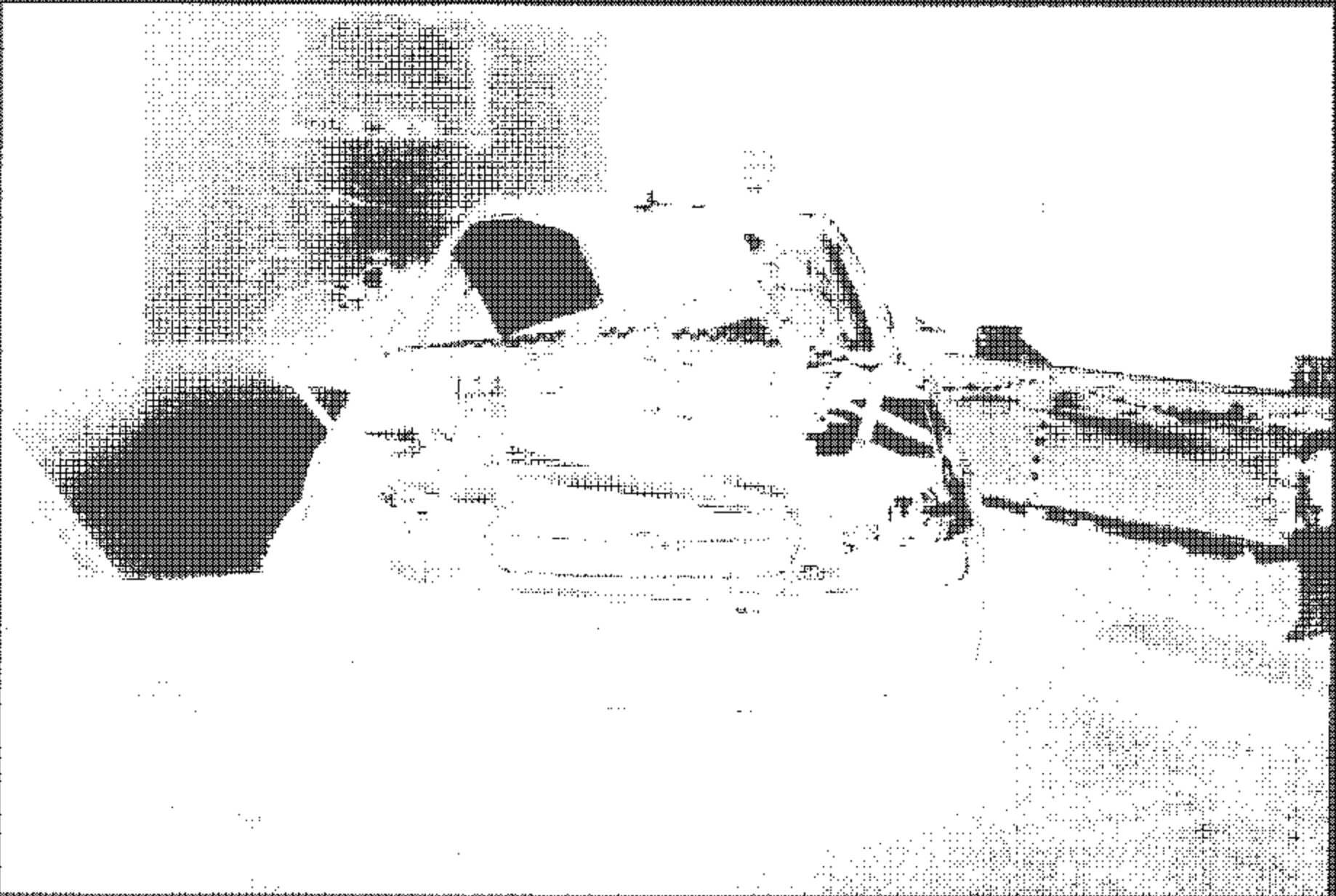


Figure A-2 Post-Fire Front View of Test Vehicle

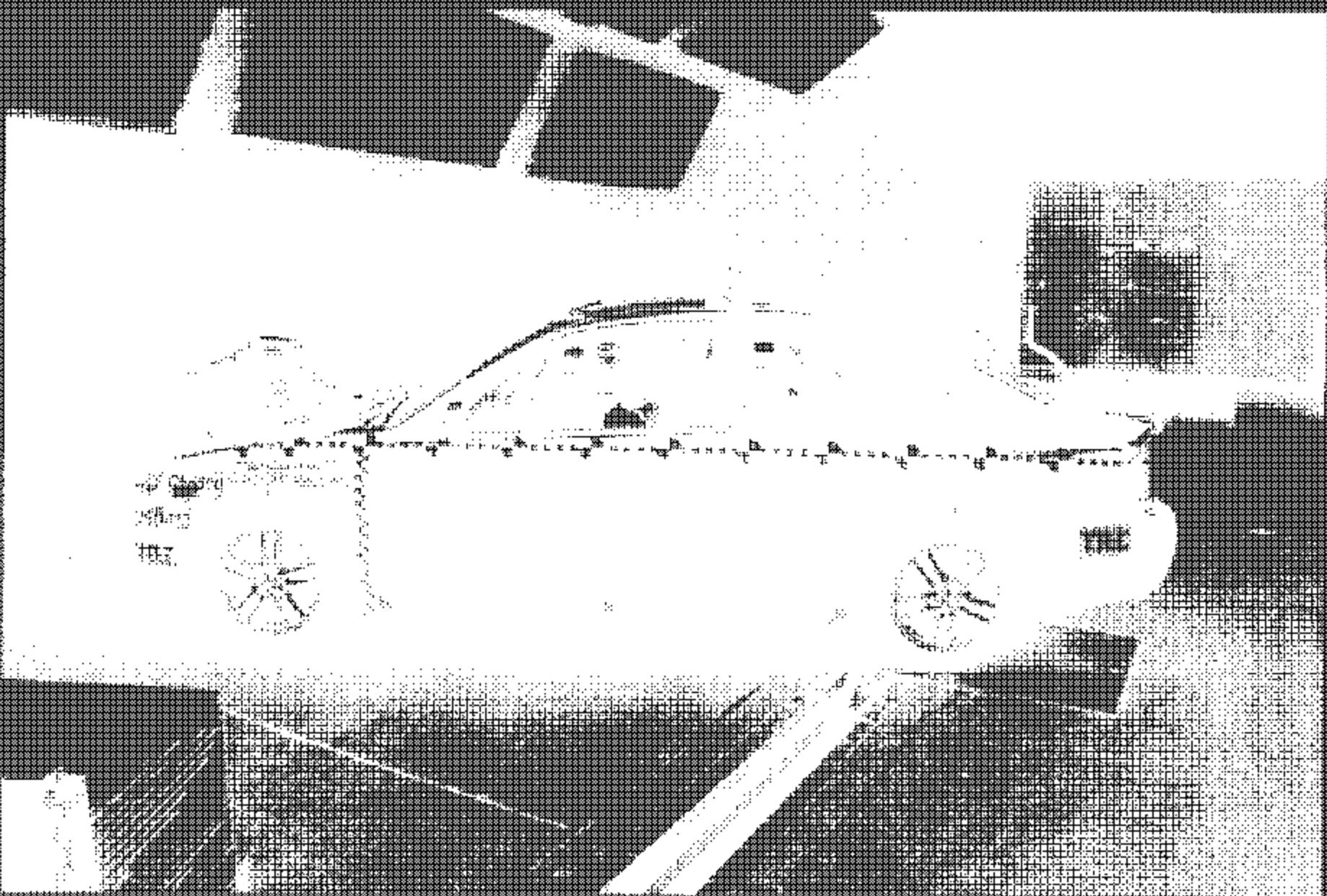


Figure A-3 Pre-Kent Impaired Side View of Test Vehicle

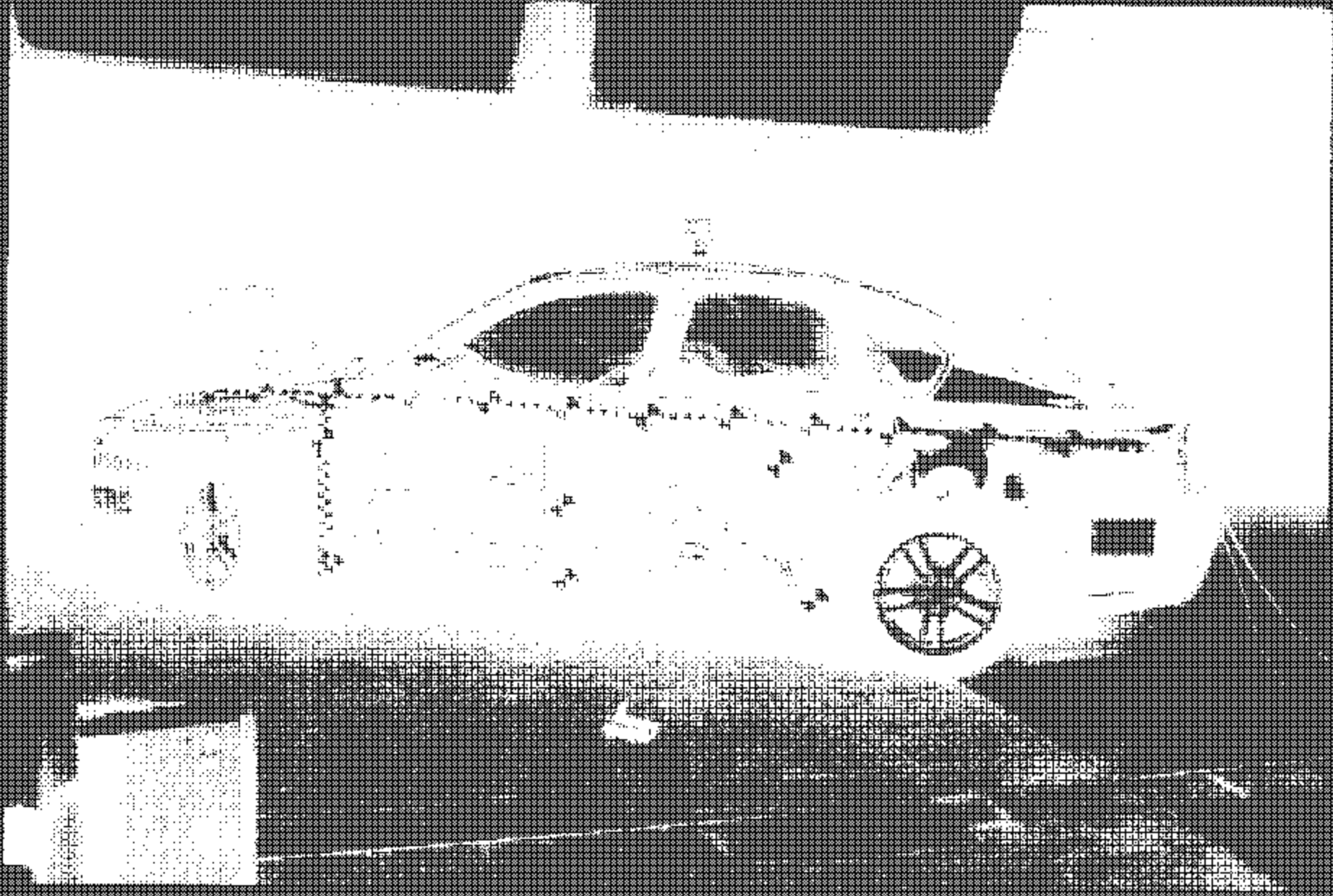


Figure A-4 Post-Test Impacted Side View of Dead Vehicle

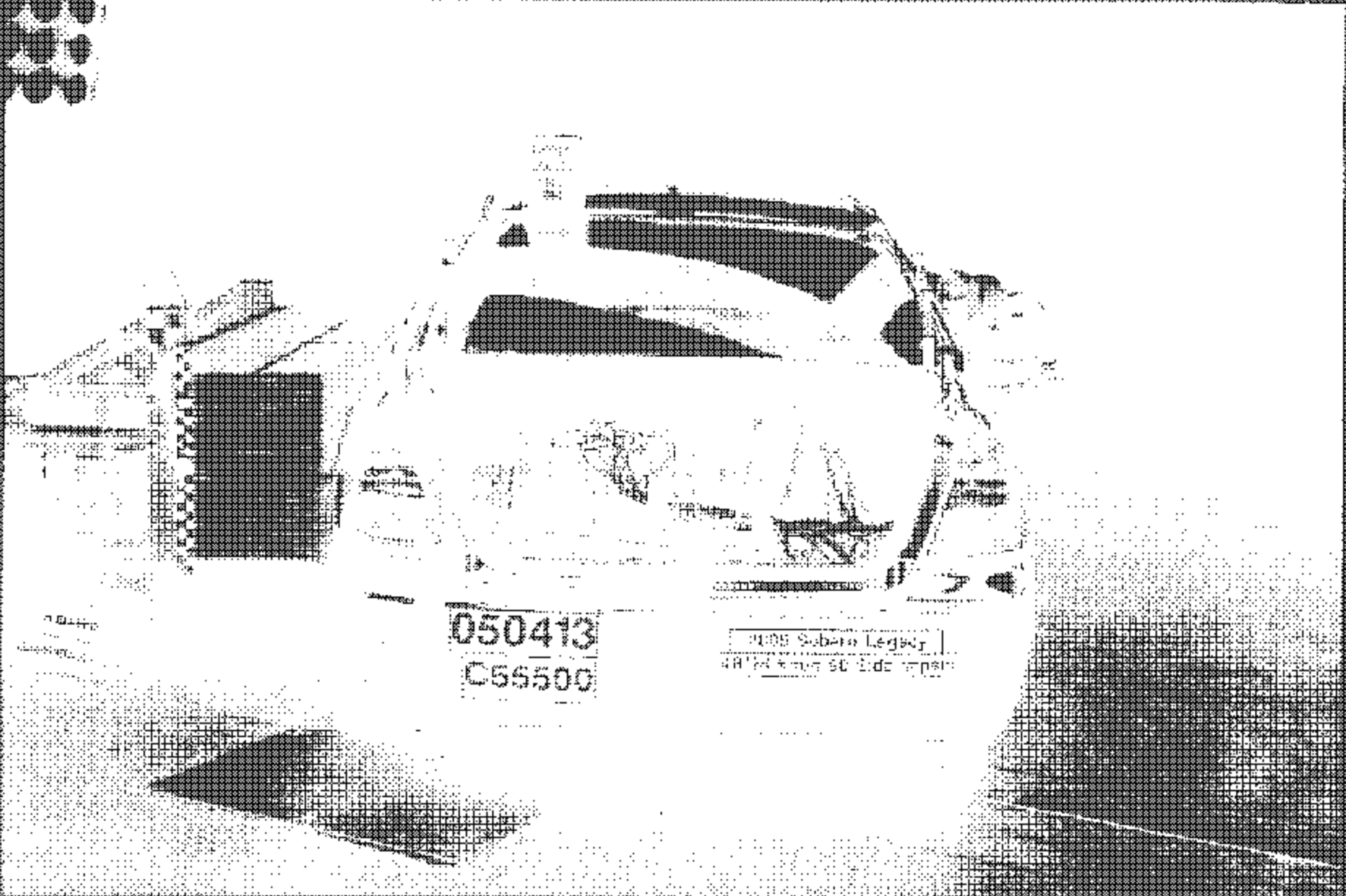


Figure A-5 The Last Day View of This Vehicle

A-9

050413



Figure A-6 Post-Test Rear View of Test Vehicle

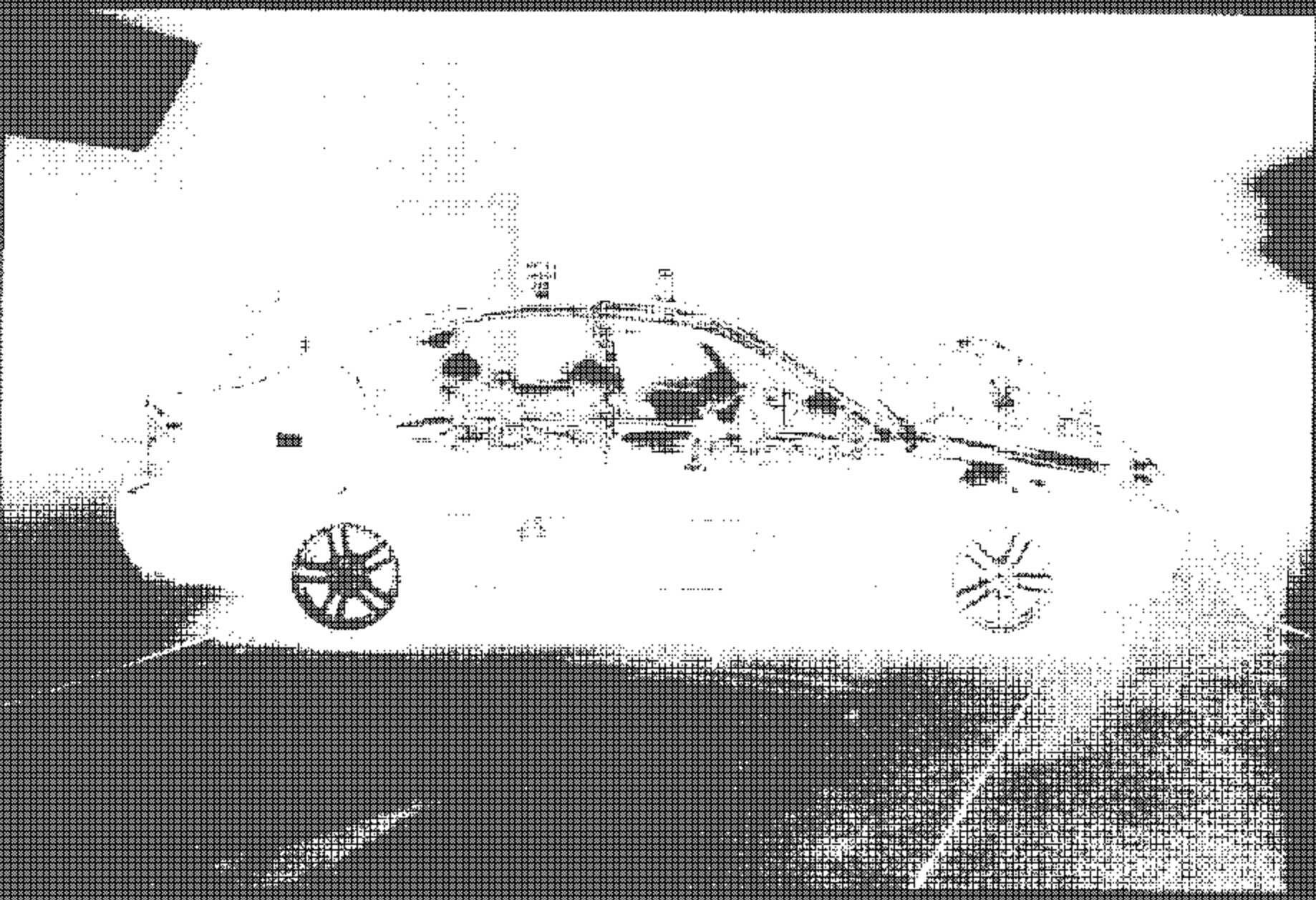


Figure A-7 Pro-Tect Non-Spark Side View of Test Vehicle

A-11

030413

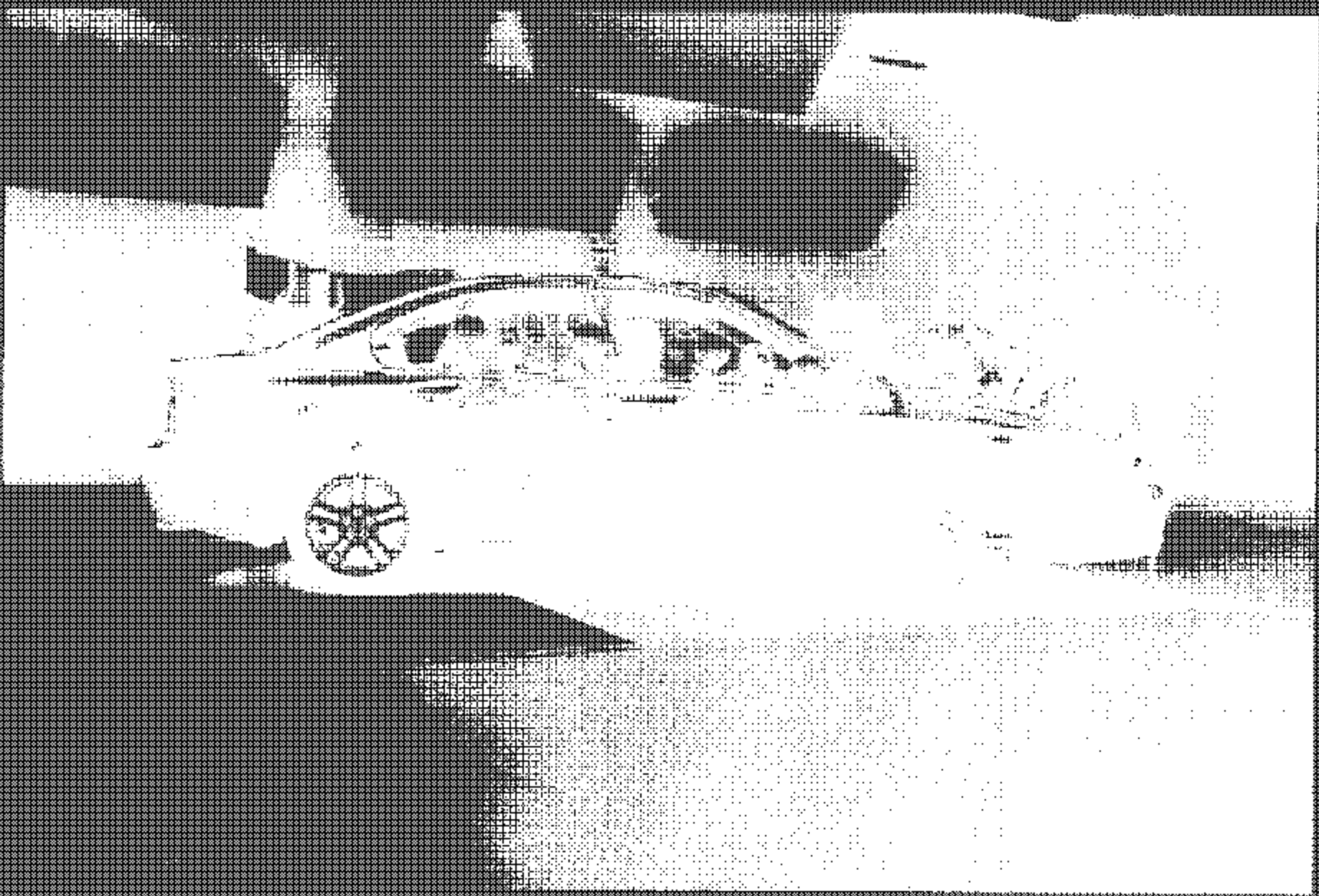
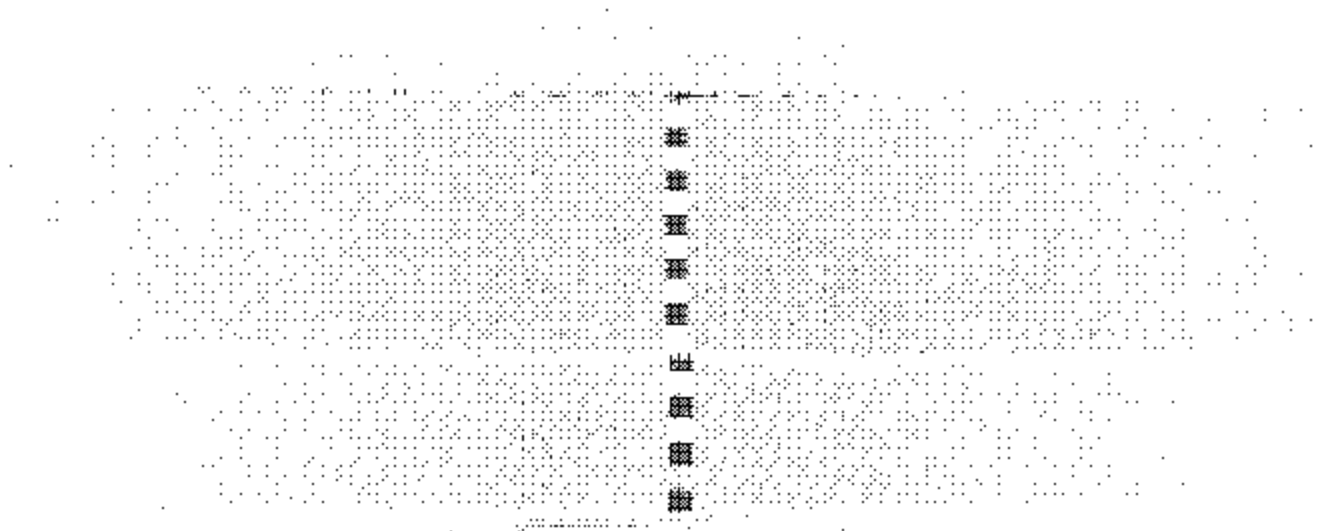


Figure A-5 Post-Test Non-Summed Side View of Test Vehicle



上 緒 綱 圖 樣 圖 到 圖 樣 圖

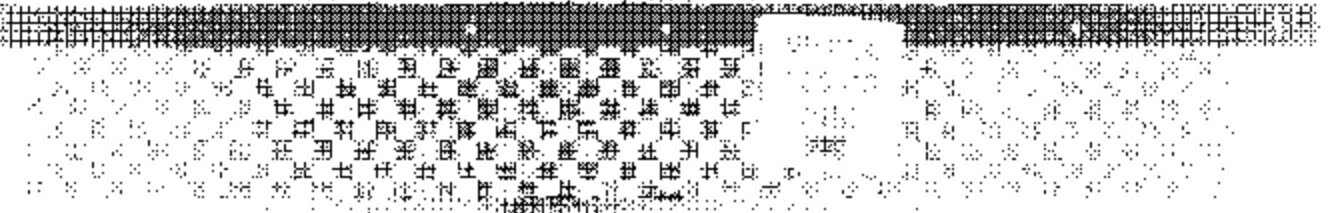


Figure A-9 Pre-Test (Front) View of Inspector Face

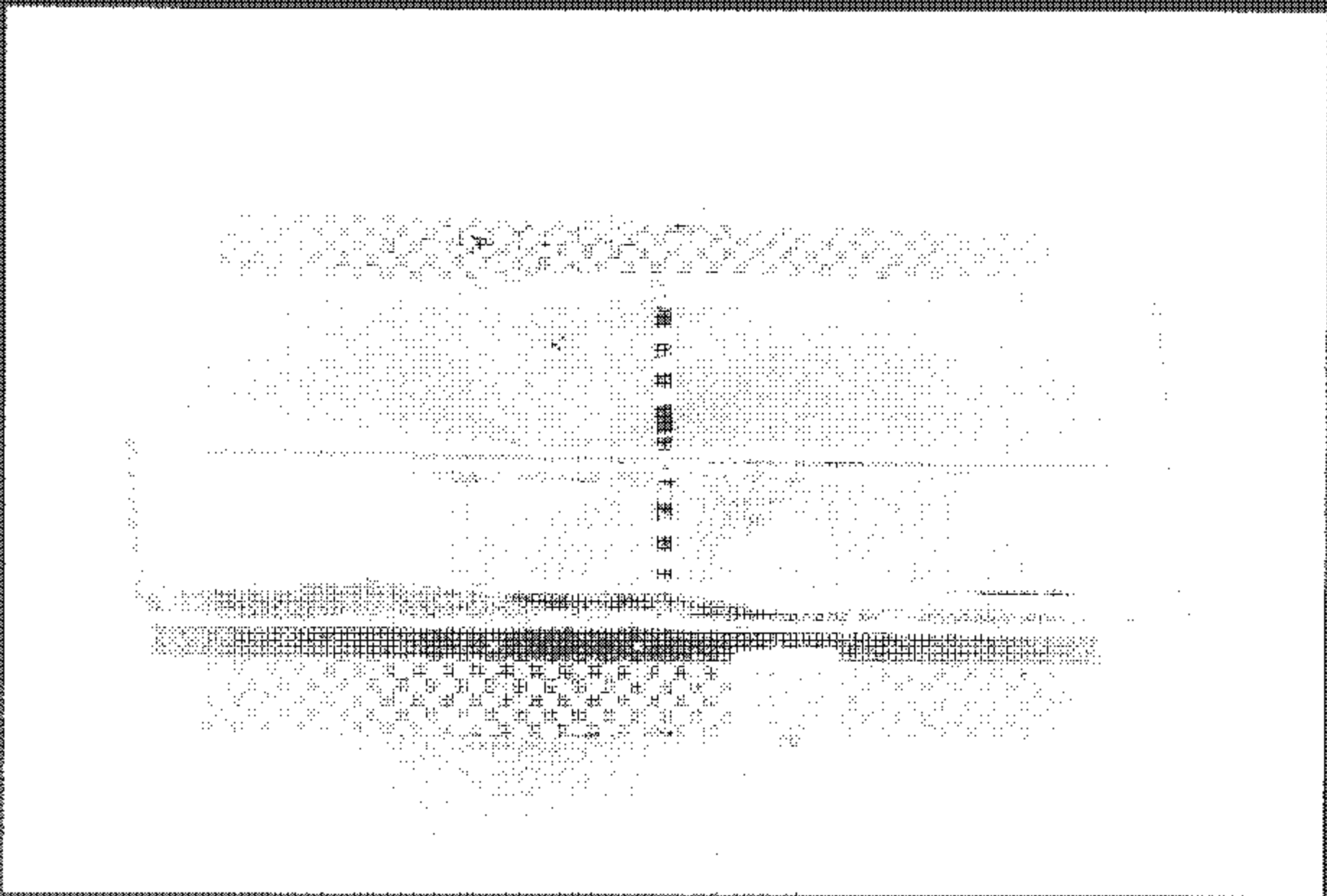


Figure A-14 Post-Test Frontal View of Inspector's Box

A-14

050413

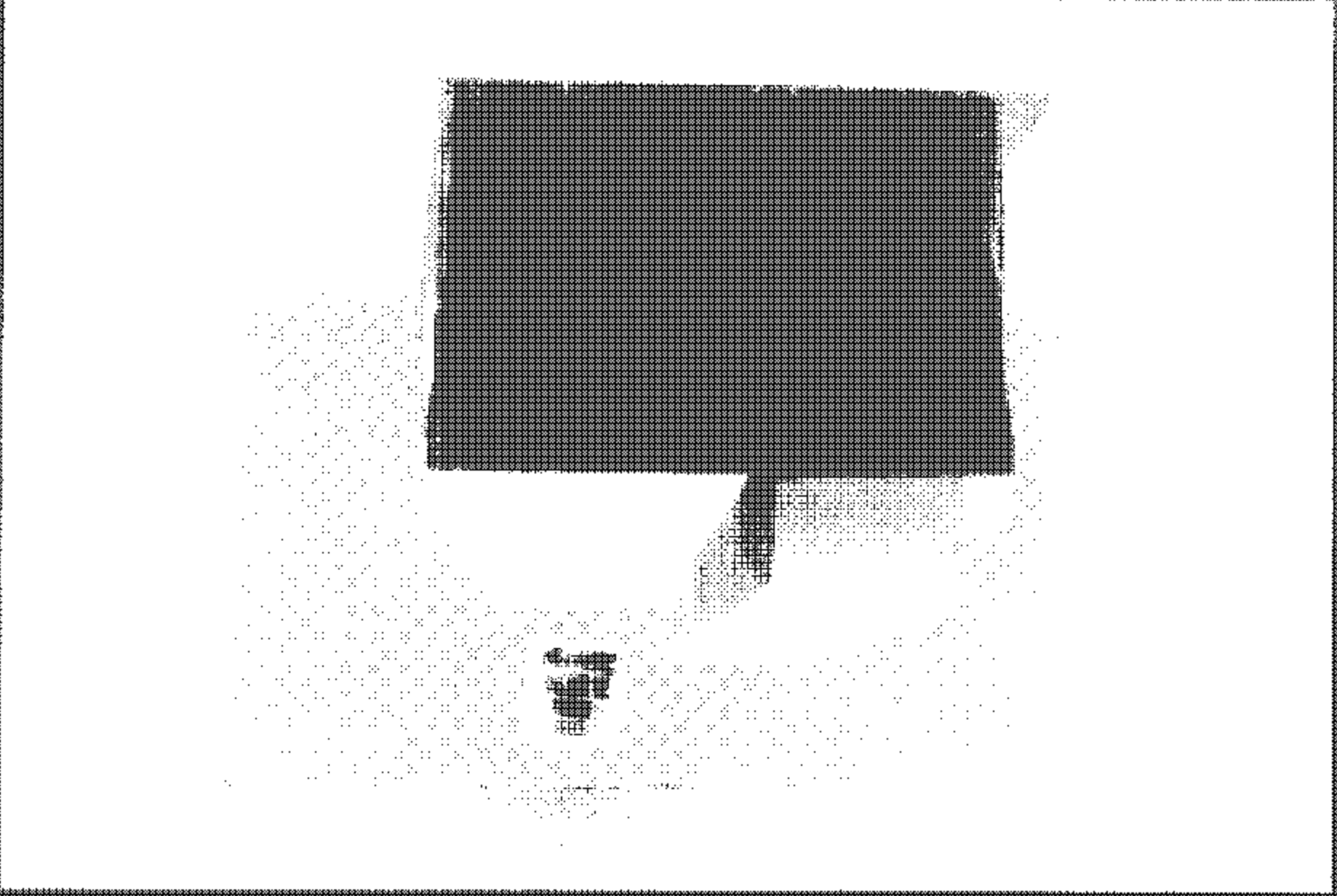


Figure A-11 Pre-Test Left Side View of Impactor Base

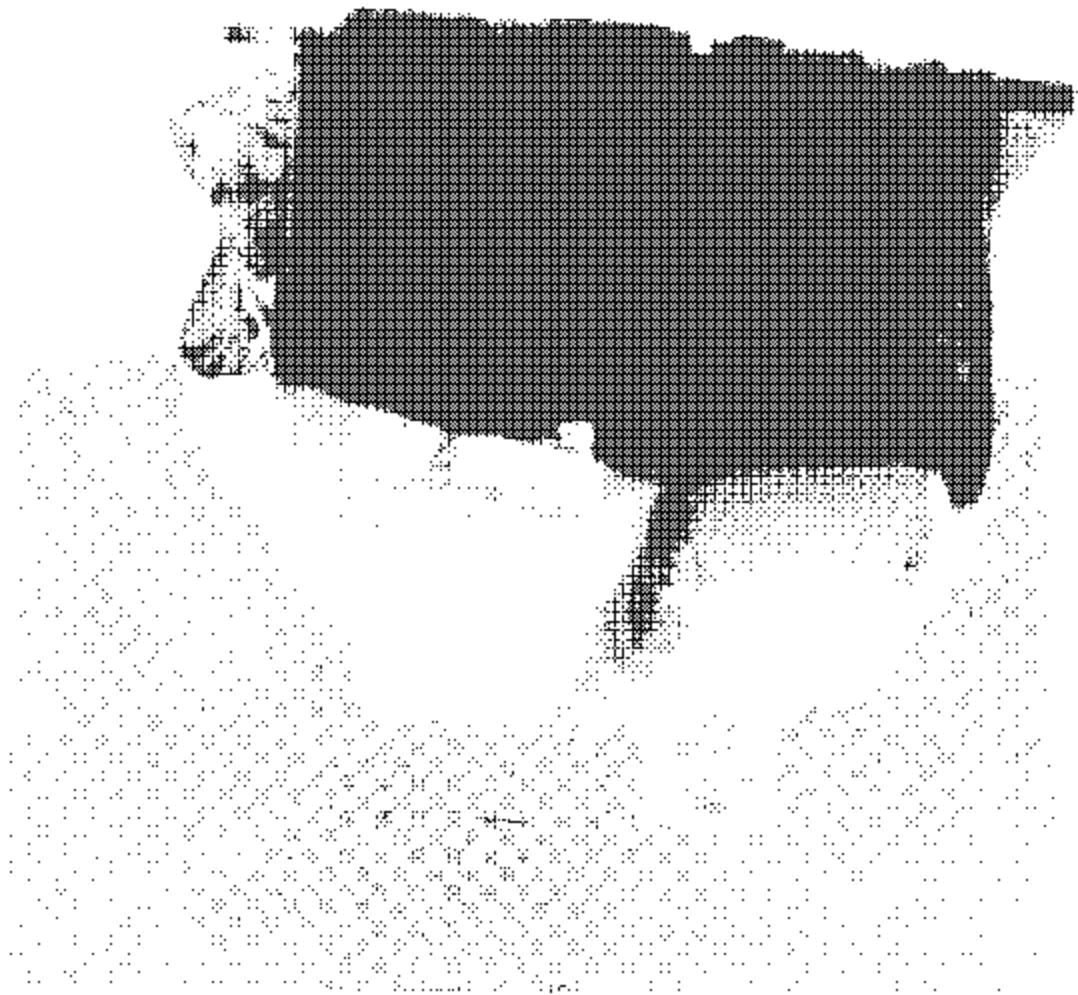


Figure A-12 Post-Test Left Side View of Impactor Base

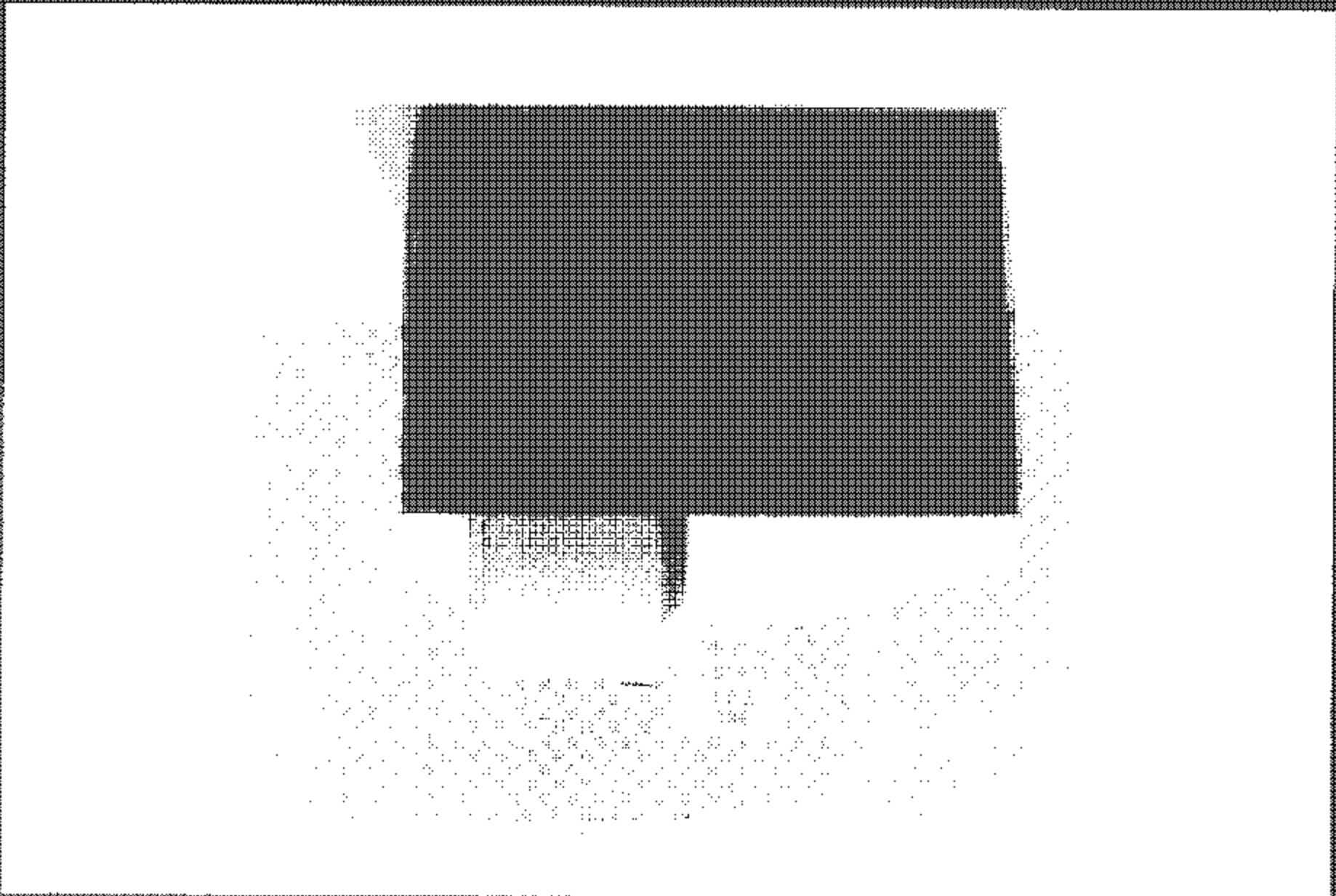


Figure A-13 Pre-Test Right Side View of Inspector Face

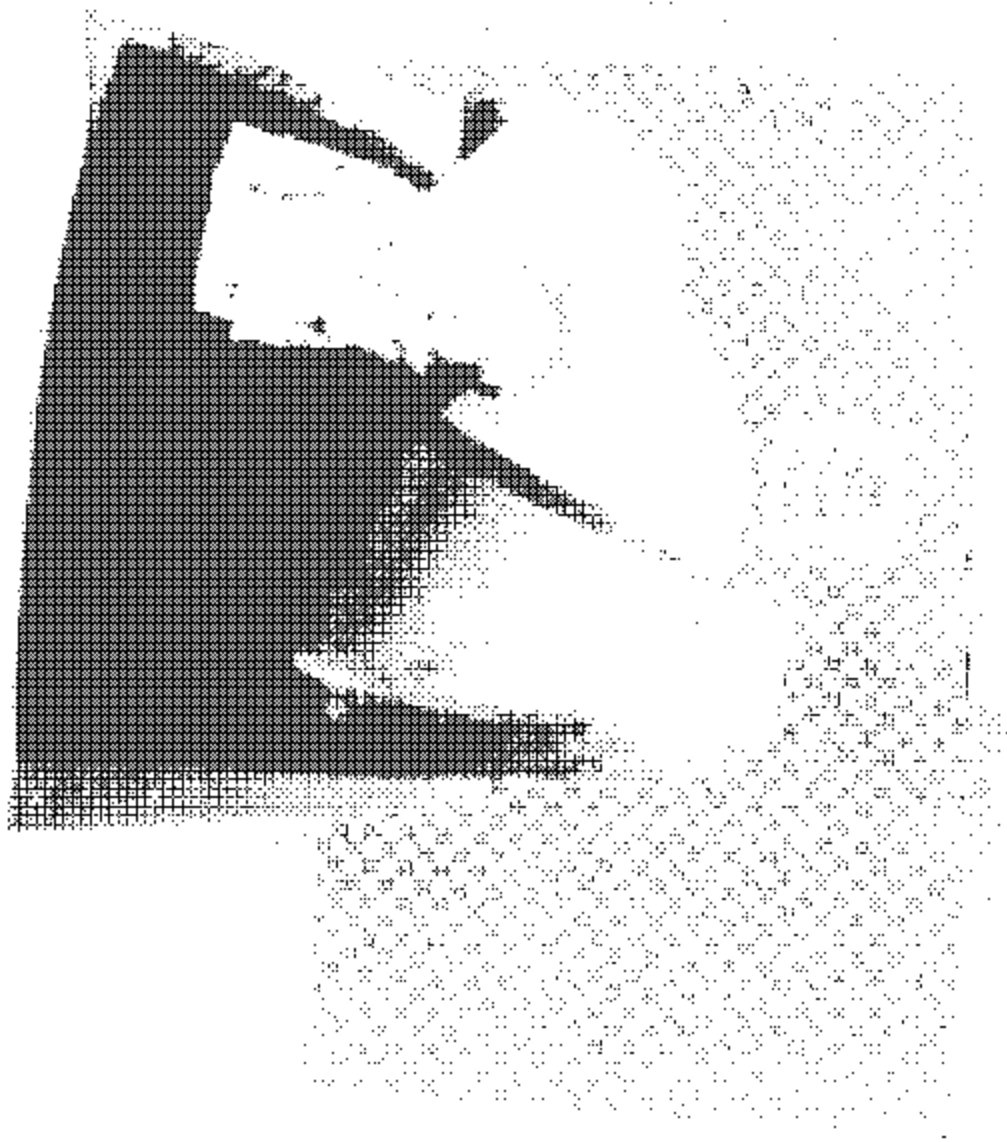


Figure A-14 Post-Test Right Side View of Impactor Face

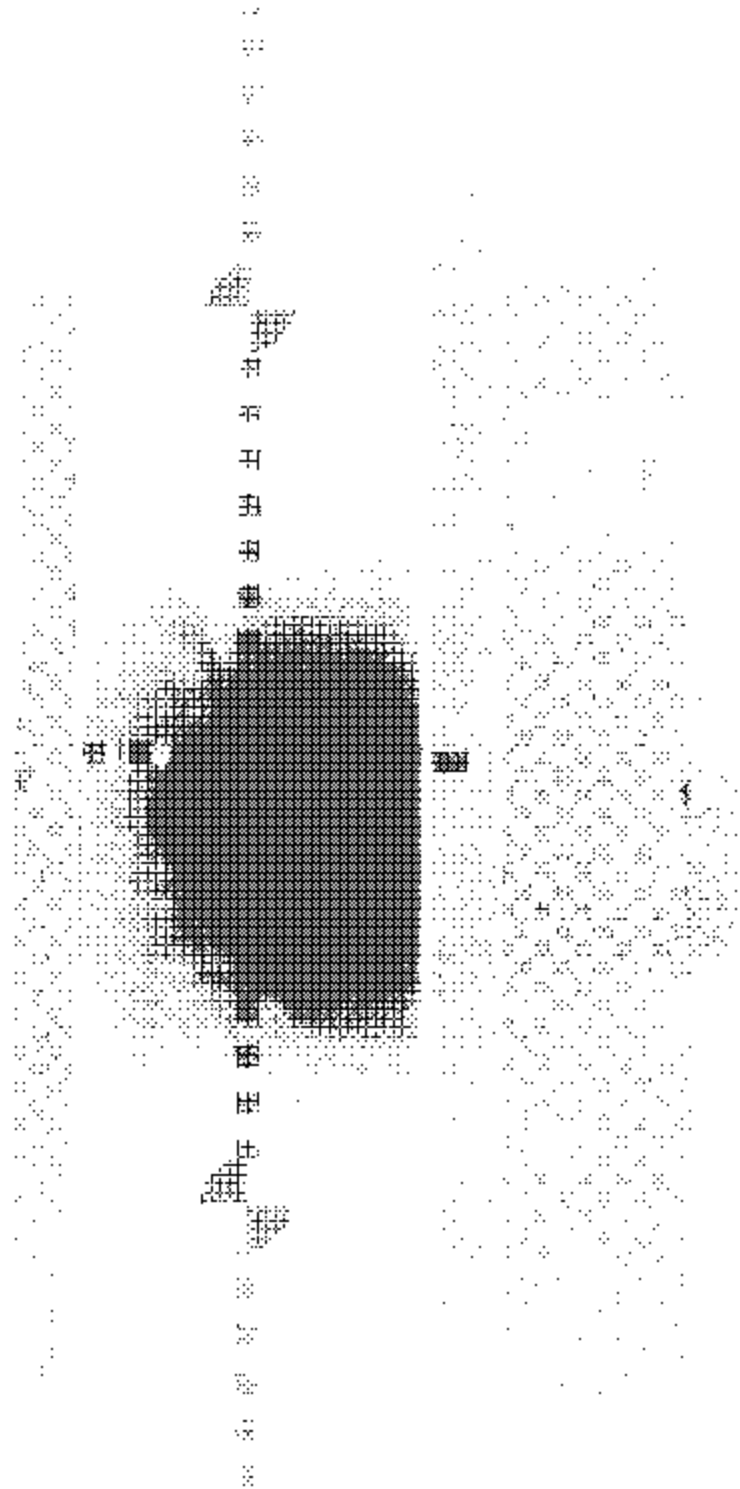


Figure A-15 Pre-Test Top View of Impactor Face

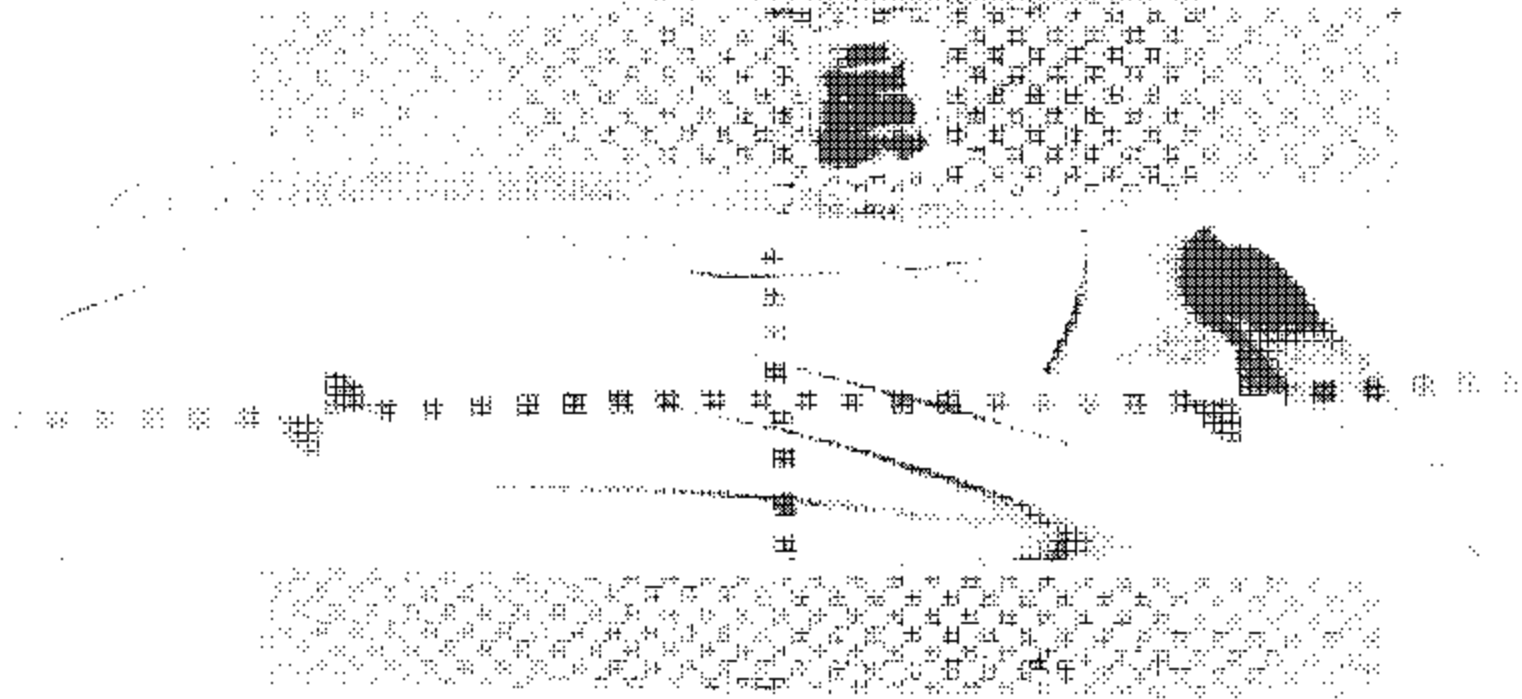
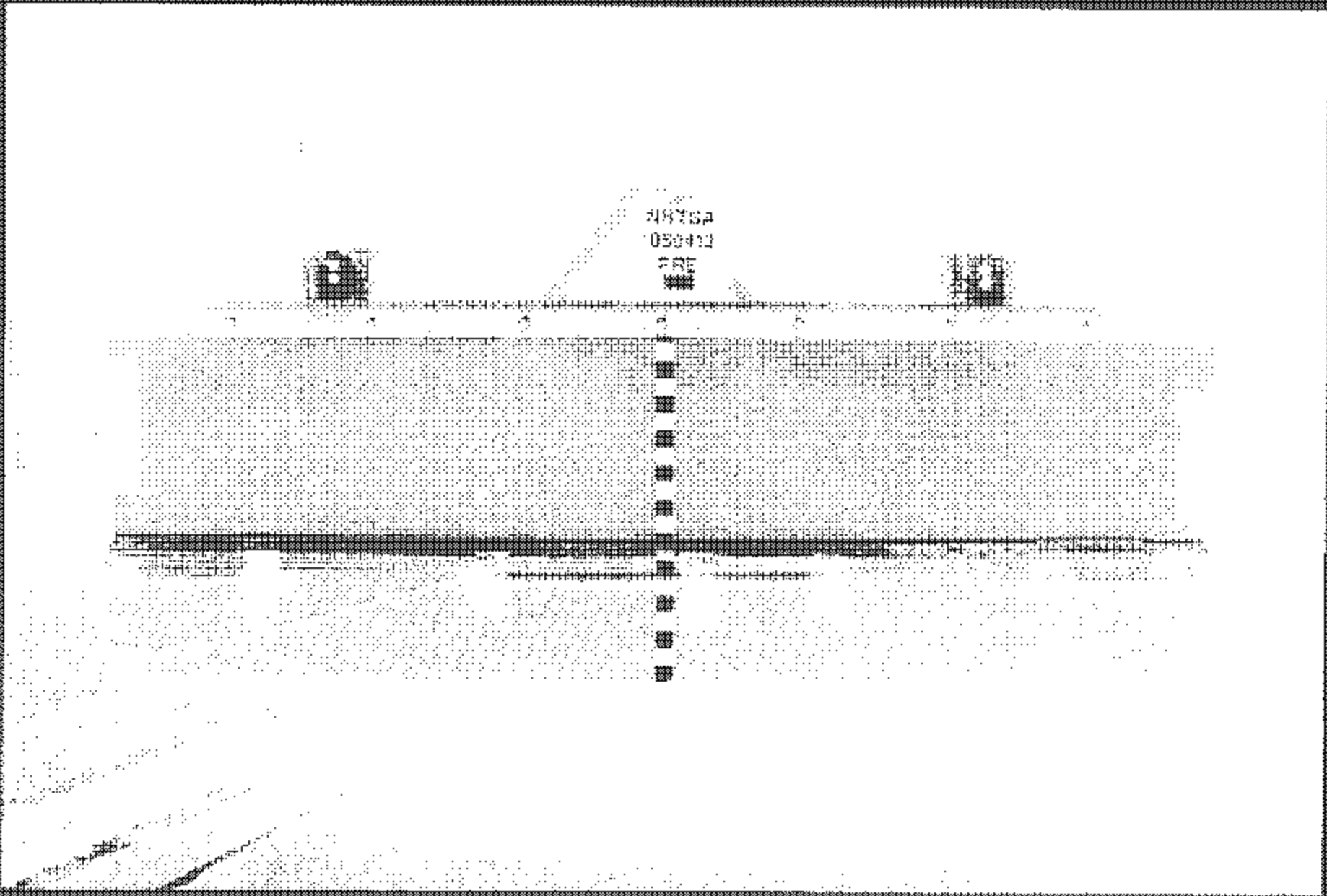


Figure A-16 Post-Test Top View of Impactor Nose



050413

050413

050413

Figure A-17 Pre-Test View of MDD Showing Contact Switches in Place

A-21

050413

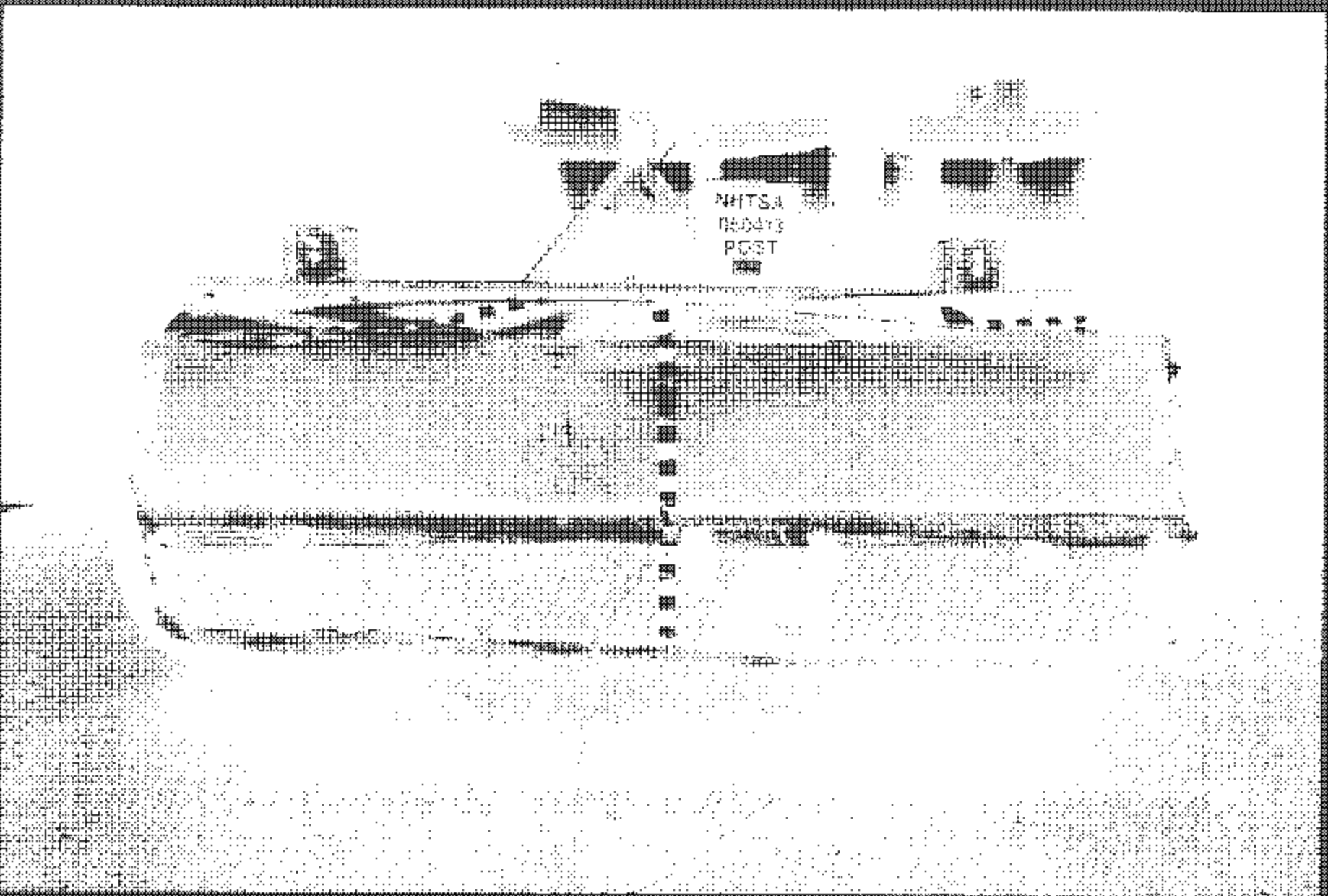


Figure A-18 Part I and View of MDL Showing Control Switches in Place

A-22

010412

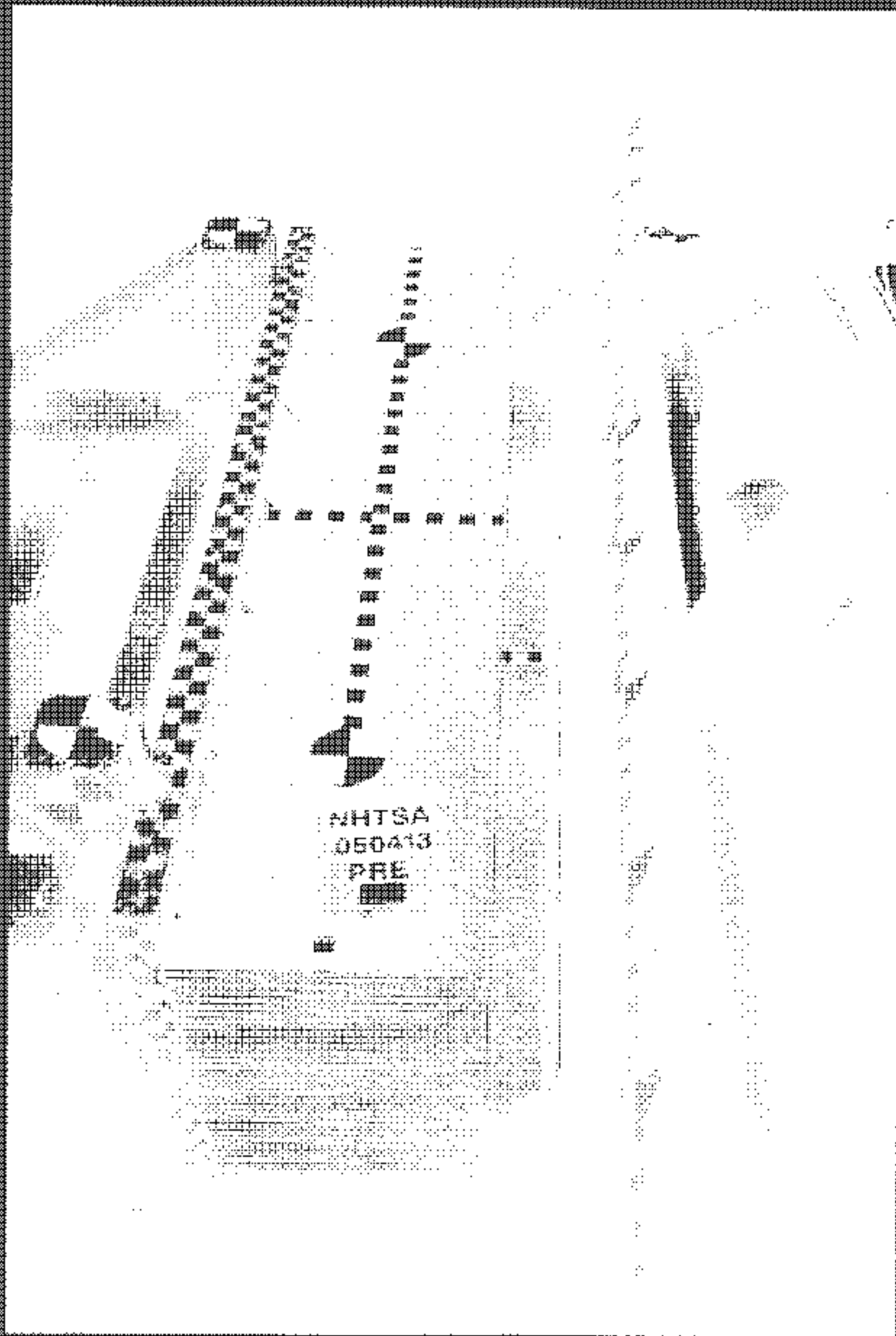


Figure A-19 Pre-Test Overhead View of MDB Aligned with Vehicle



Figure A-20 Post-Impact Overhead View of Vehicle



Figure A-21. Pre-Test Flight Occupant Compartment View of Front SID

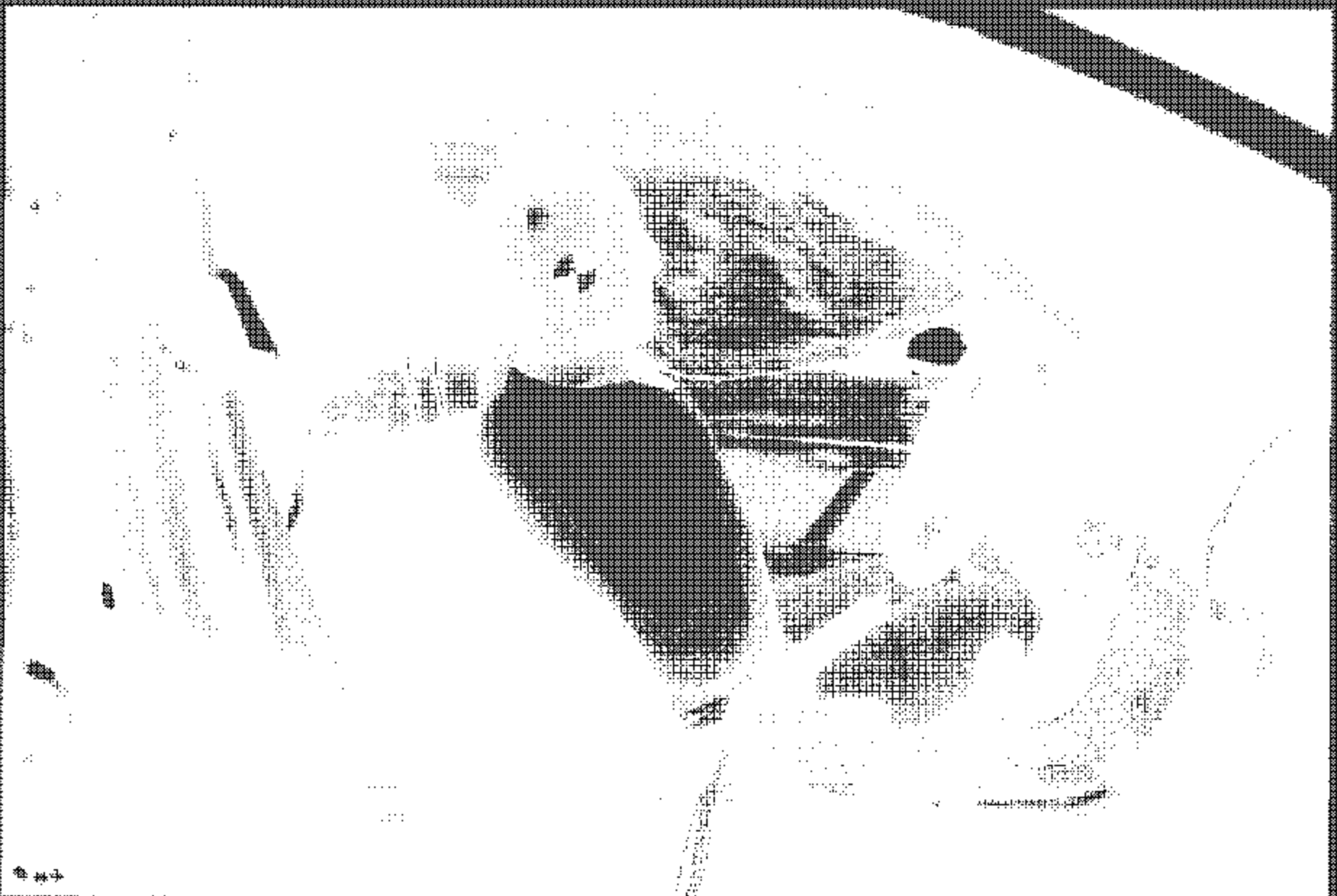


Figure A-22 Post-Test Flight Occupant Compartment View of Troop SID

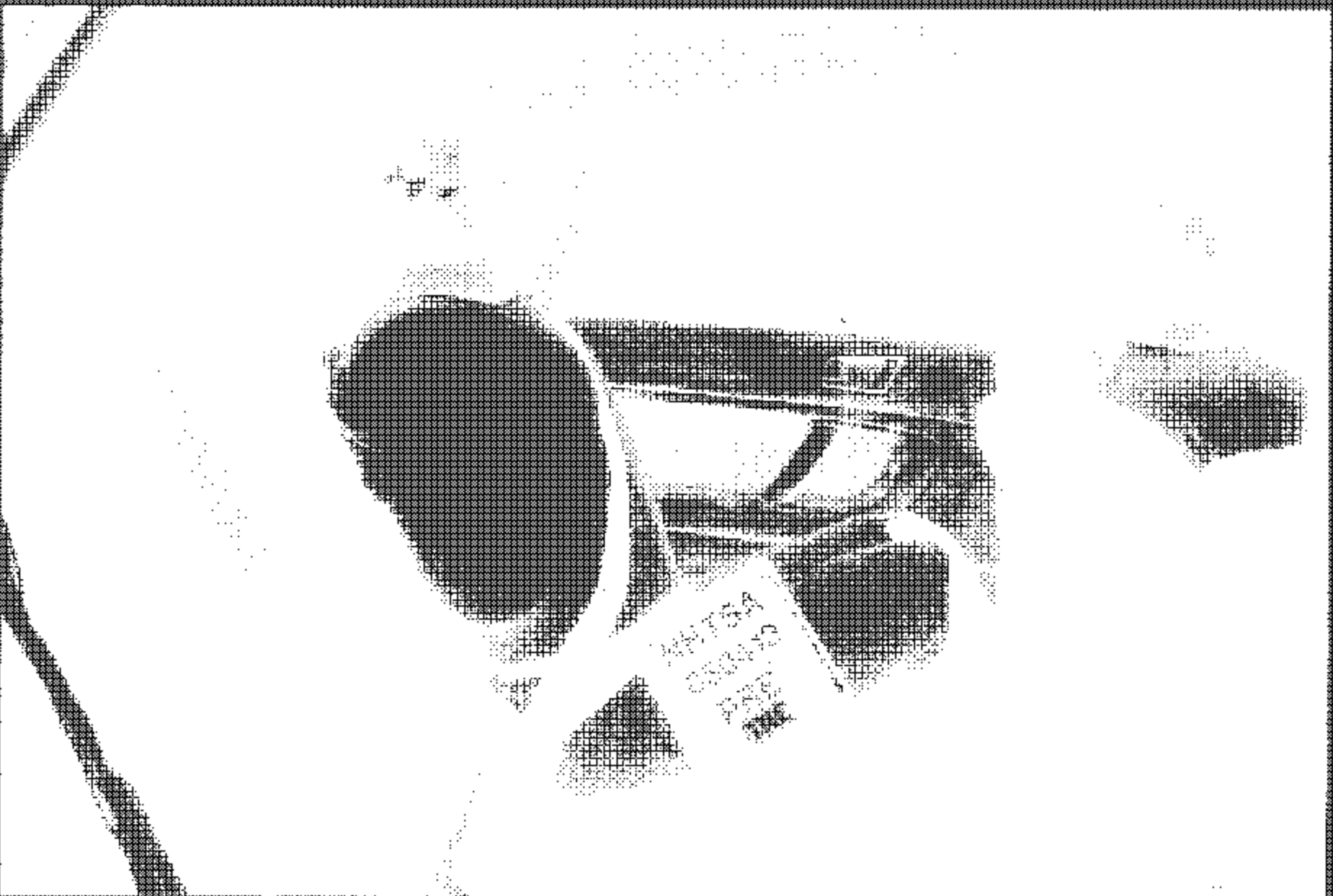


Figure A-23 Pre-Test Flight Occupant Compartment View of Rear SID

A-27

030413

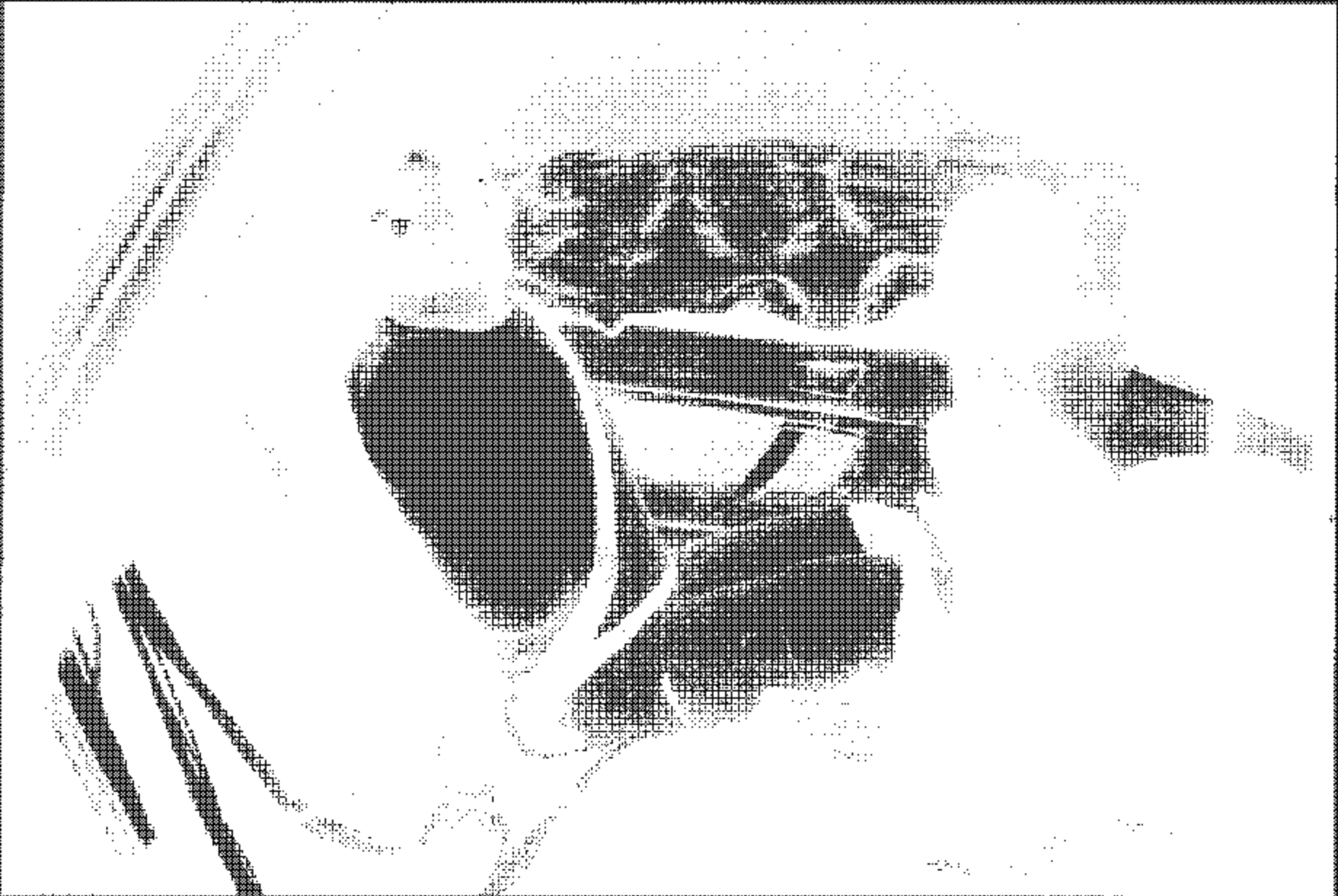
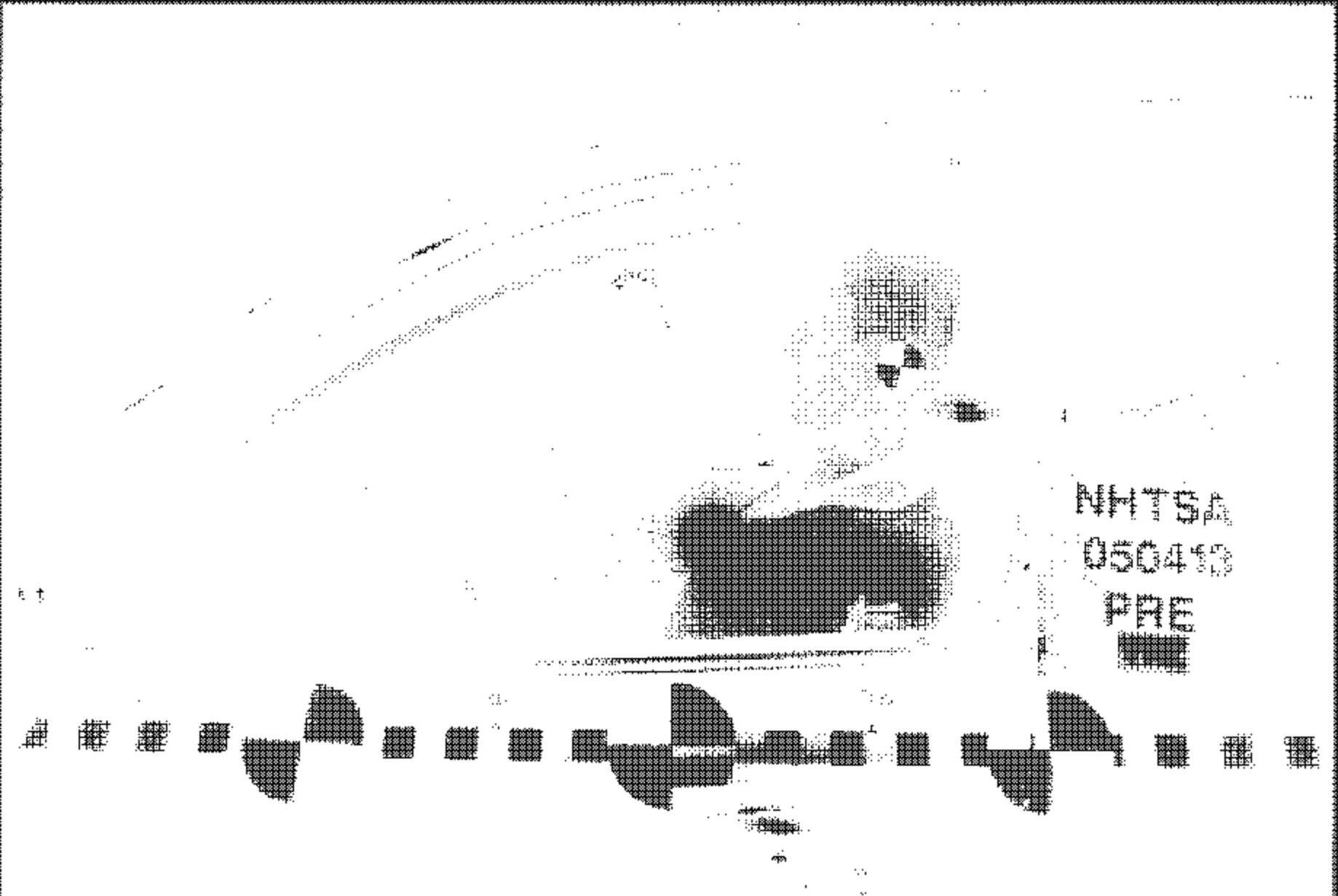


Figure A-24 Post-Test Right Occupant Compartment View of Rear SID



74475A
050413
PRE

Figure A-25 Post-Test Left View of Front SFD

A-29

050413

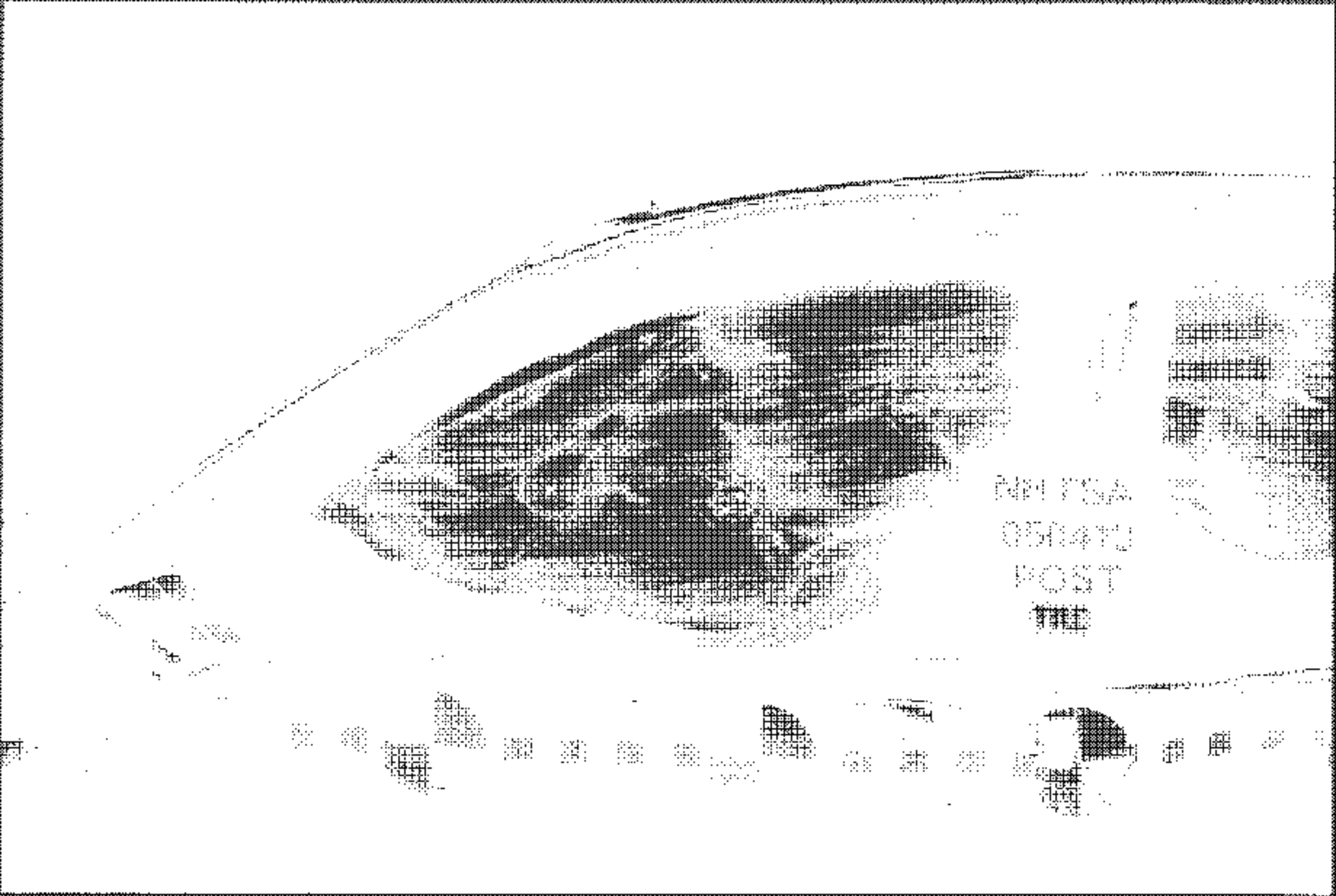


Figure A-26. Postcard Left View of Front SID

A-30

090113

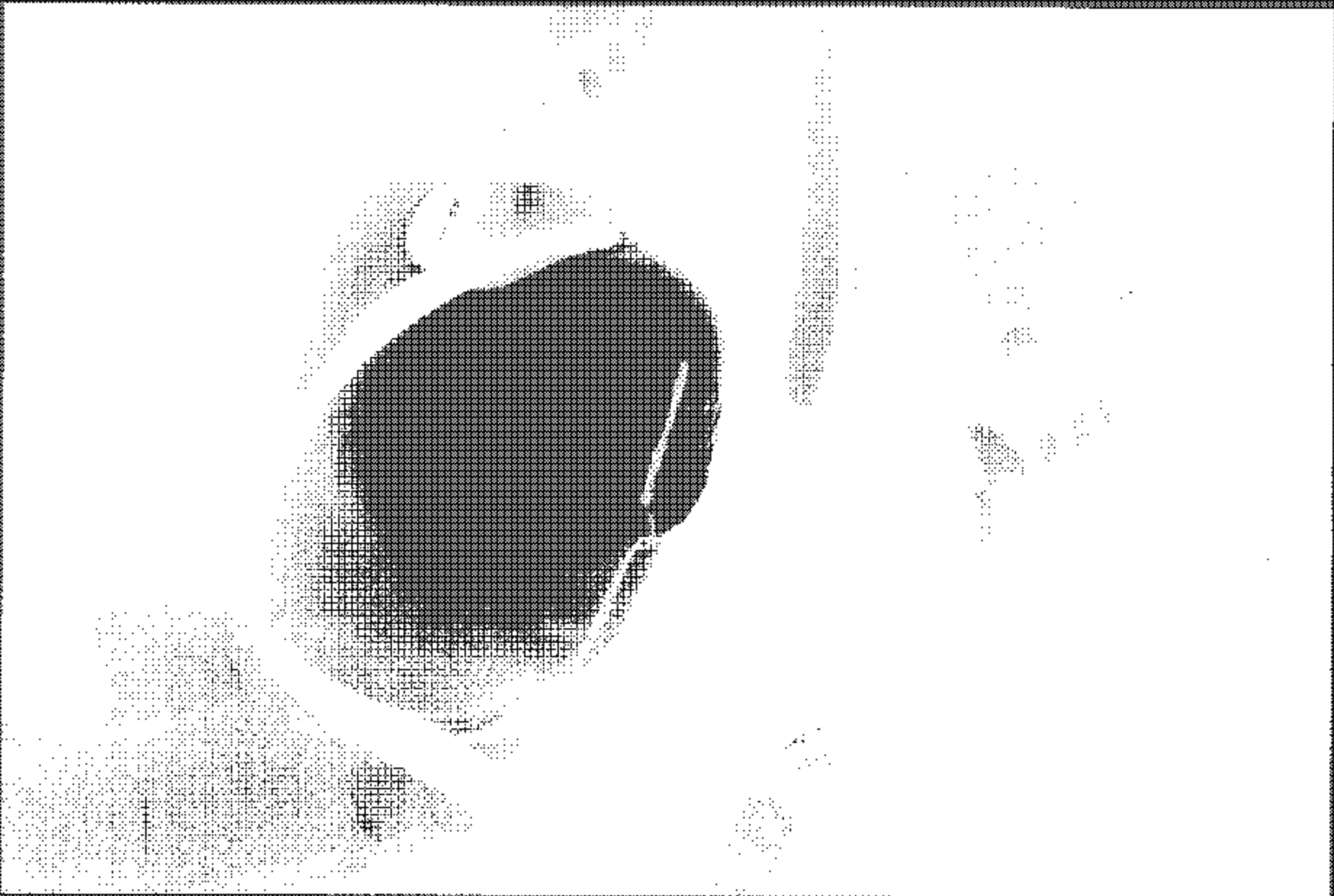


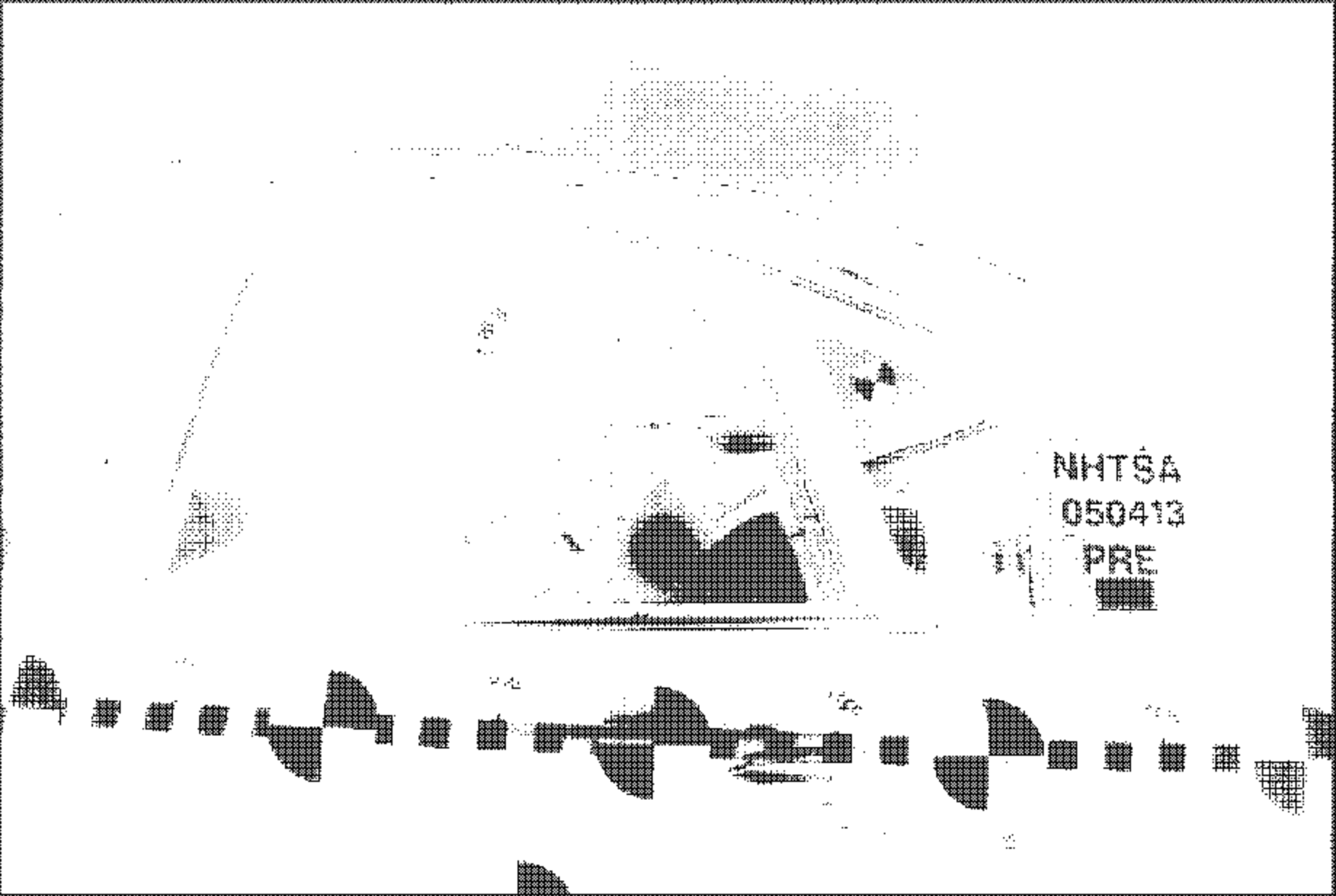
Figure A-27 Pre-Test Left View of Front S/D and Belt Position



Figure A-28 Pre-Test View of Front SID and Door Clearance



Figure A-29 Post-Test View of Front SID and Door Clearance



NHTSA
050413
PRE

Figure A-30 Pre-Test Left View of Rear SID

A-34

050413

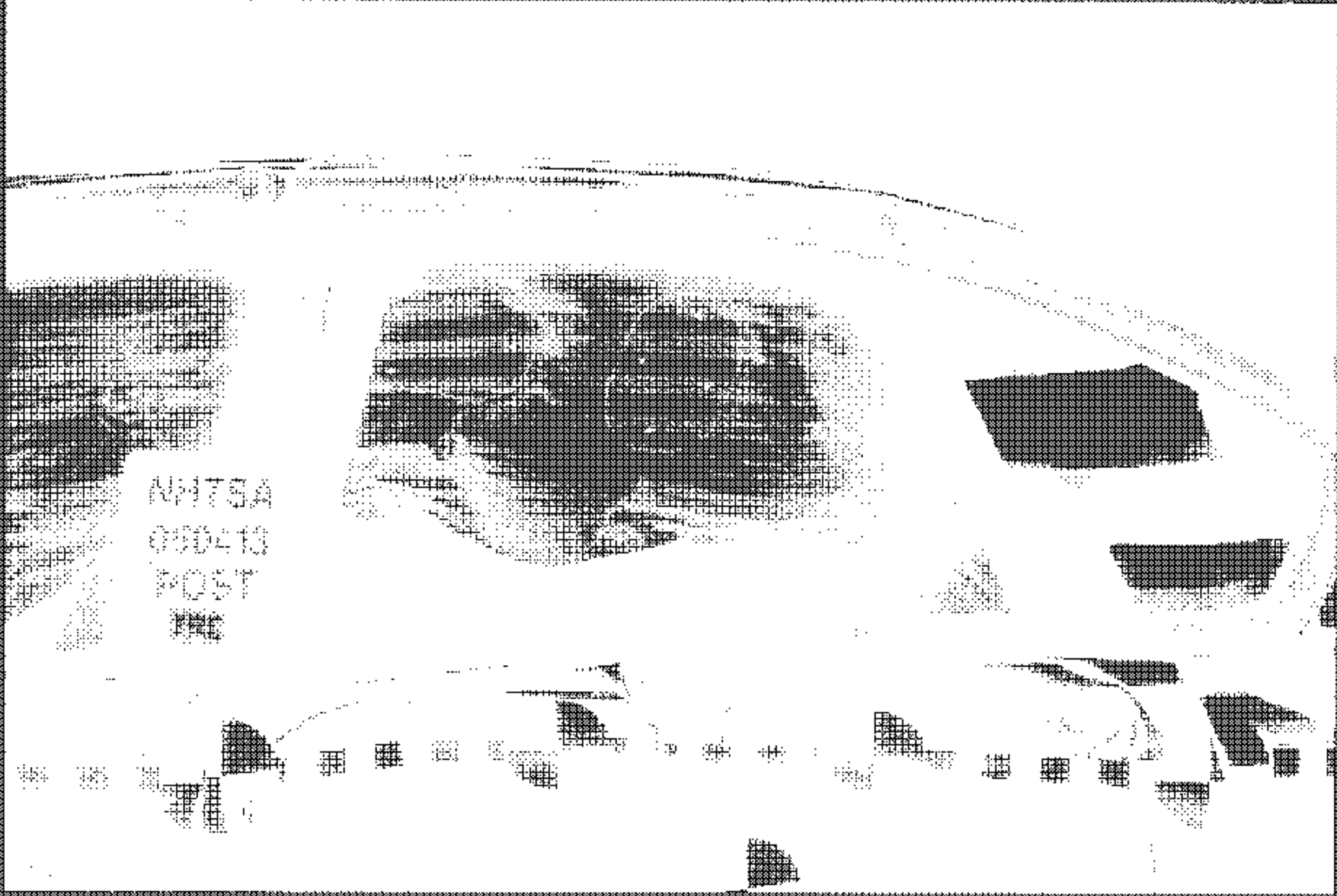


Figure A-11 Post-Test L&E View of Rear SBD

A-35

080413



Figure A-32 Pre-Test Left View of Rear SIB and Head Position



Figure A-33 Pre-Test View of Rear SID and Door Clearance



Figure A-34 Post-Test View of Rear SID and Door Clearance

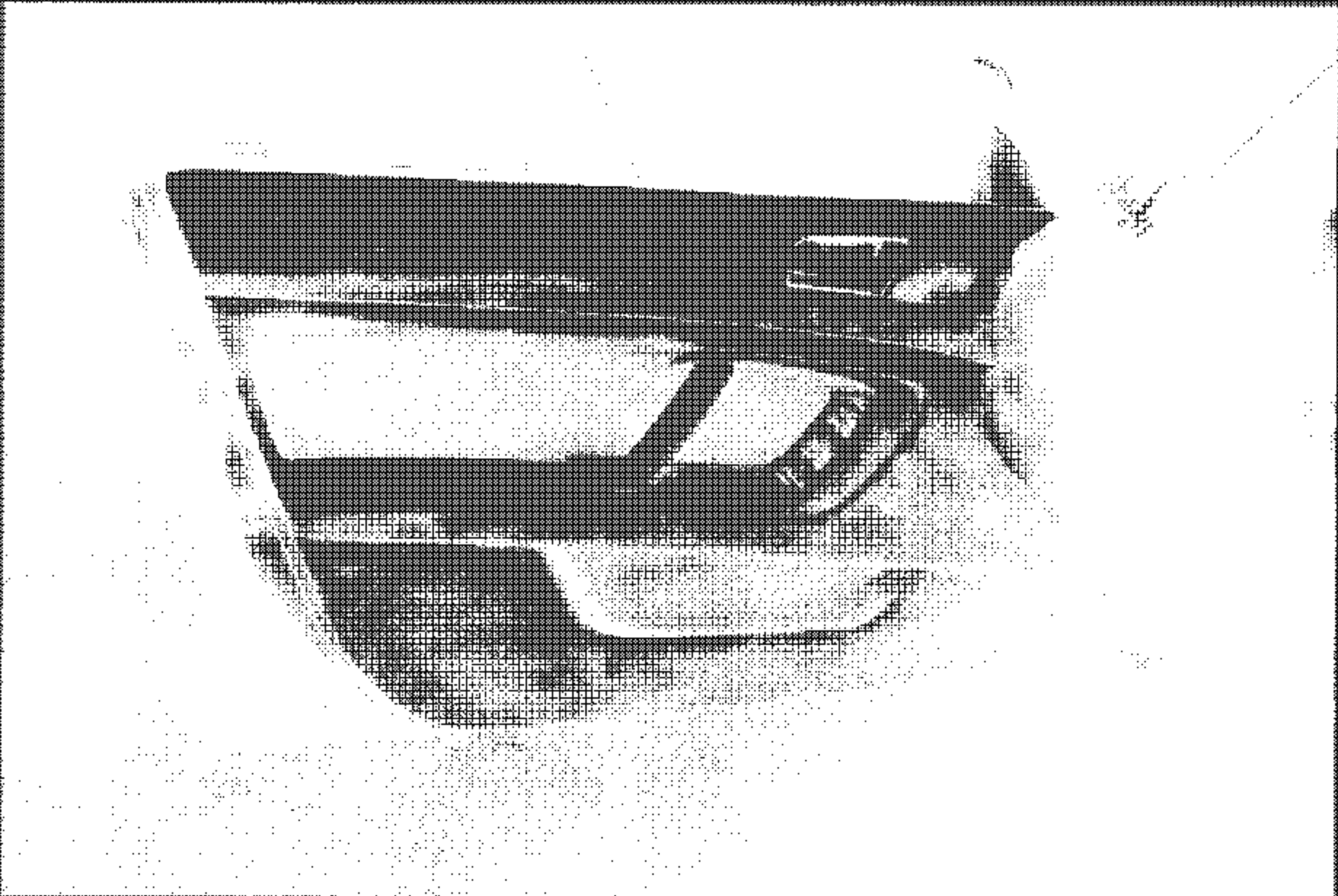


Figure A-35 Pre-Test Interior of Front Door

A-39

090413



Figure A-36. Post-Test Interior of Front Door Showing SBD Impact Evidence



Figure A-37 Post-Test Front S/D Contact - View 1

A-41

050413



Figure A-38 Post-Test Front-SID Control - View 2

A-42

020113



NY 104
060413
POST
111

Figure A-39 Post-Ten Front/SID Cockpit - View 3

A-49

080413

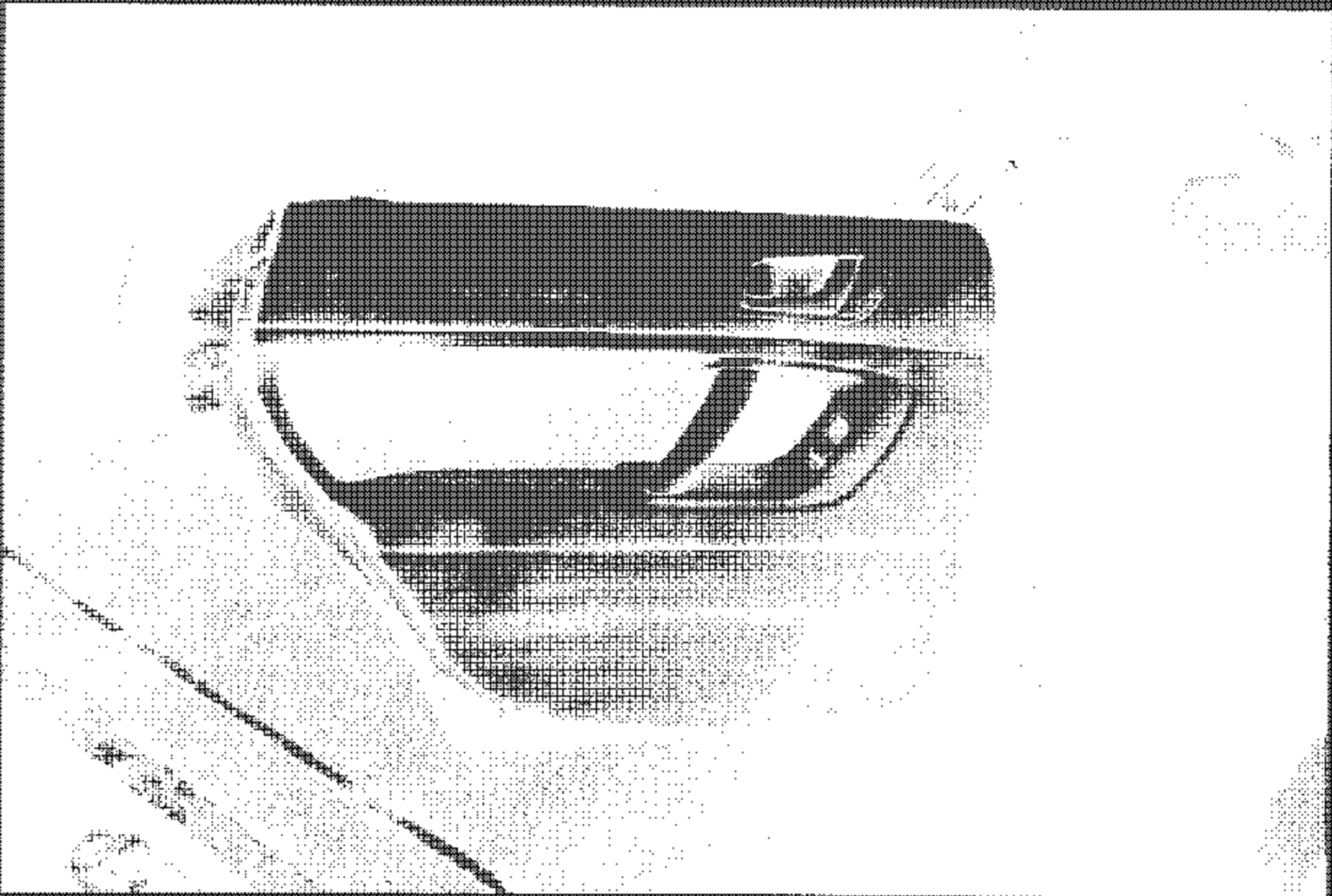


Figure A-10 Pre-Test Interior of Rear Panel

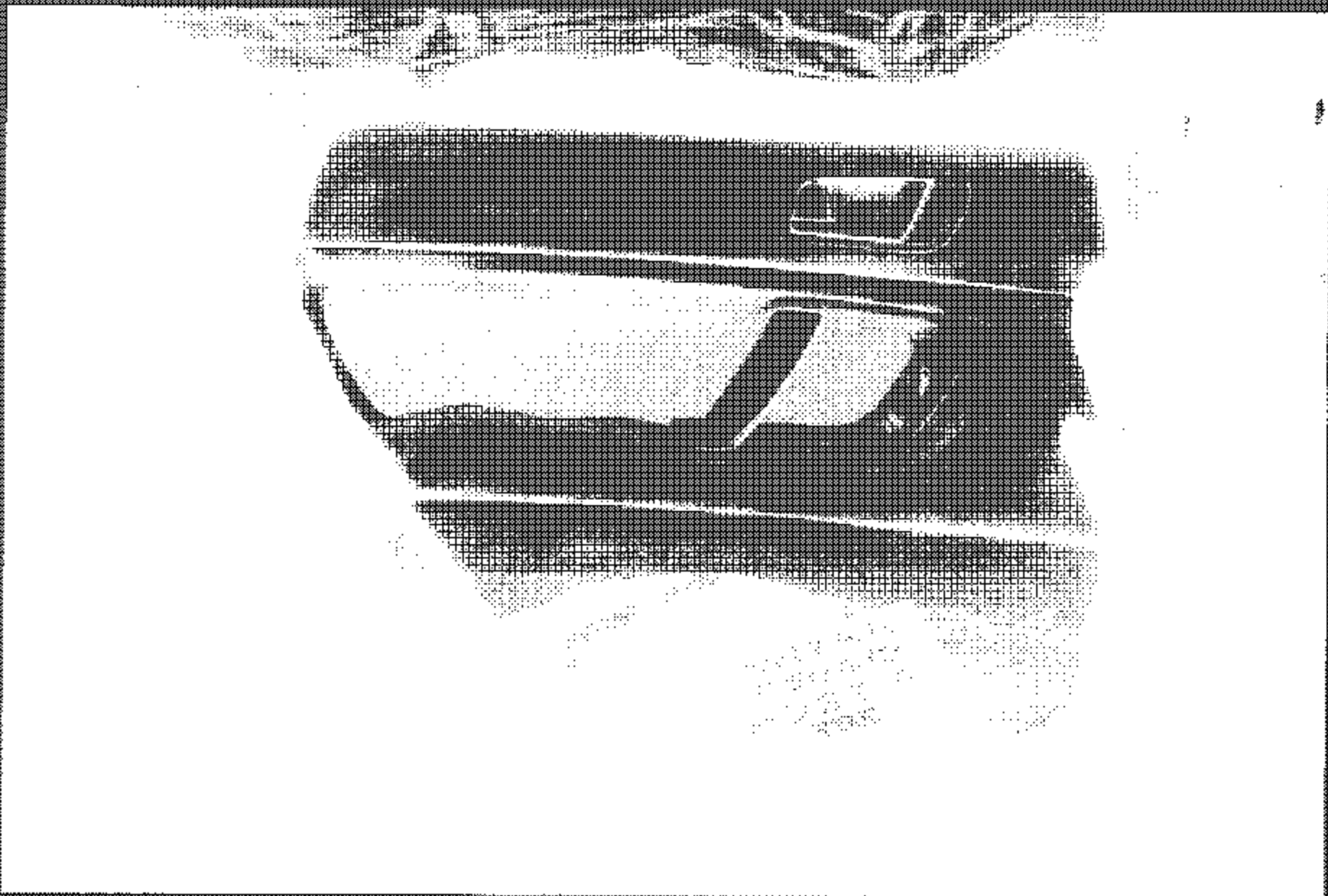
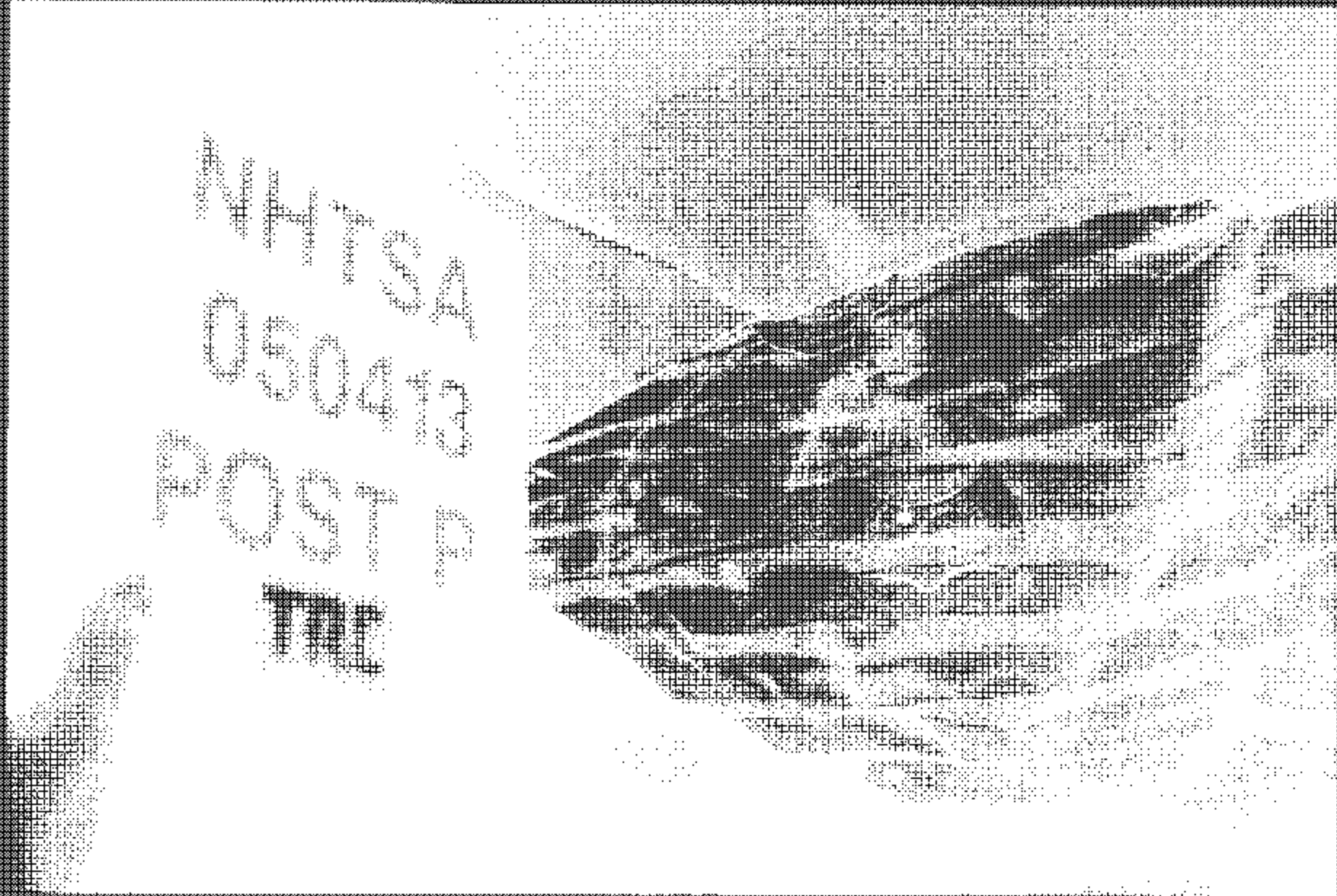


Figure A-41. Post-Test Interior of Rear Panel Showing SOI Impact Location

A-45

090413



WHITSA
050412
POST
M

Figure A-42 Post-Ten Rear-SID Contact - View 1

A-46

050413



Figure A-3 Postal Rear SID Contact - View 2

A-49

030413



Figure A-4 Post-Test Rear SID Contact - View 3

A-48

090413

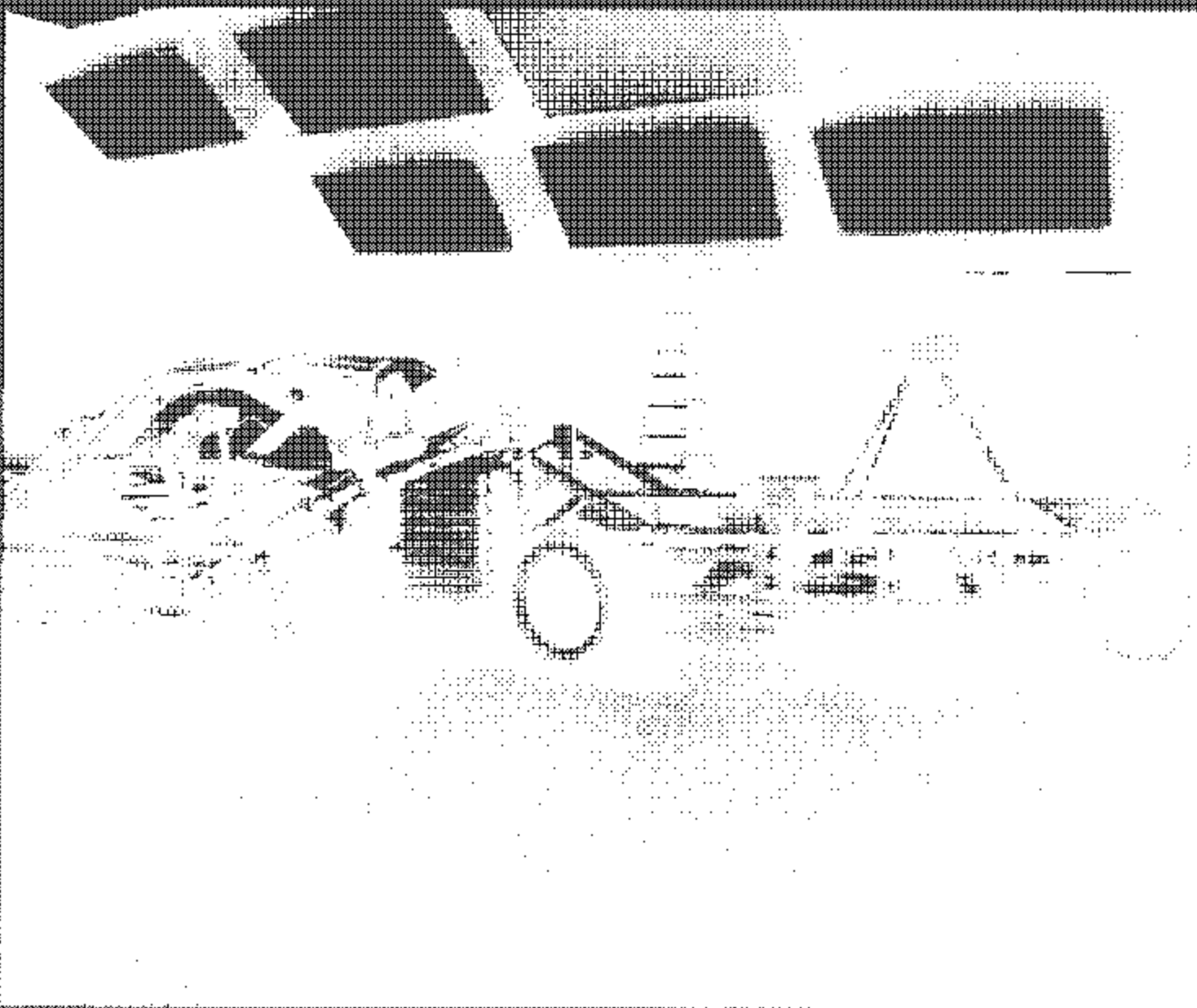


Figure A-46 Pre-Trip Left Side View of (A-46) With Inspector Face-In Position

A-46

050413

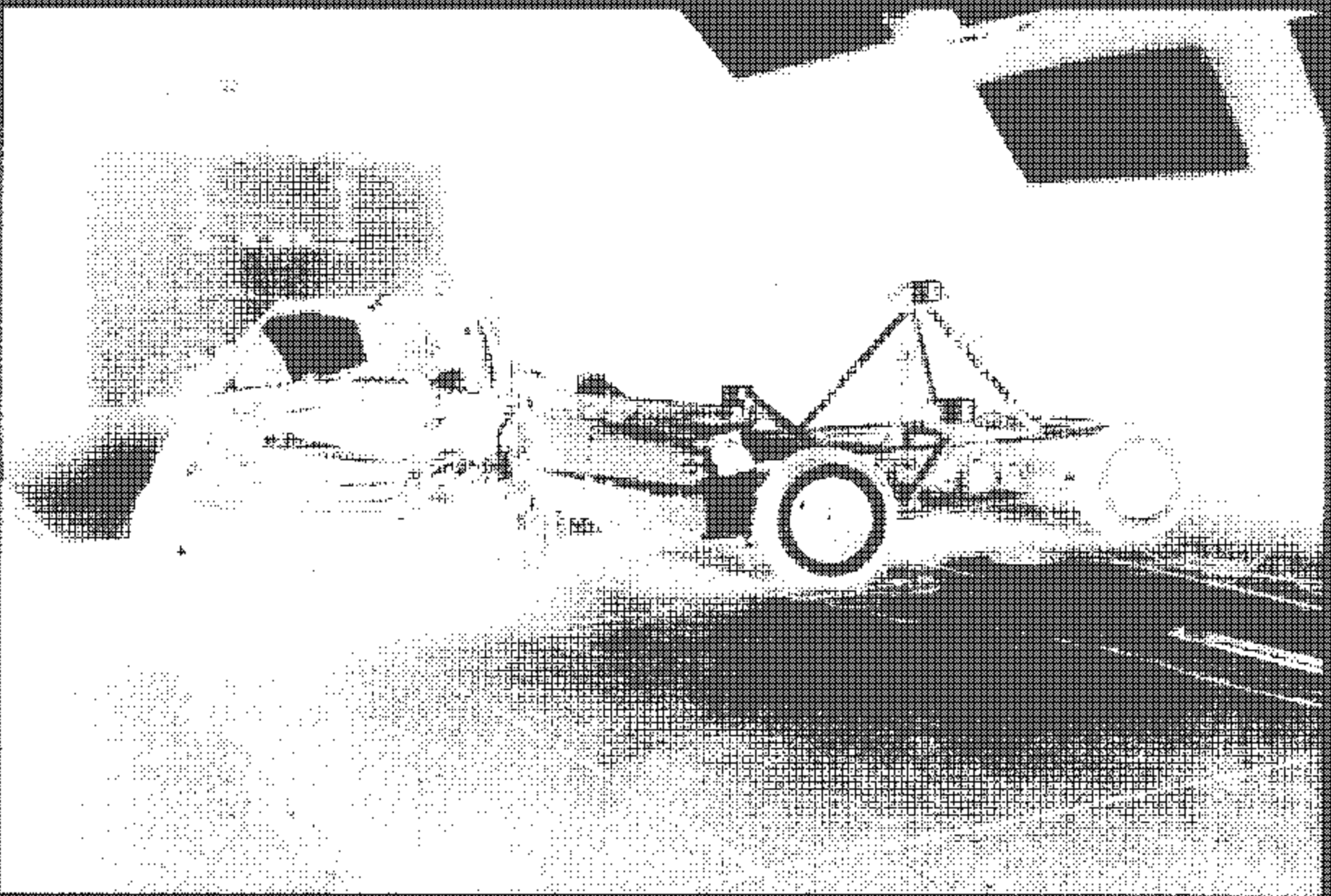


Figure A-46 Post-Test Left Side View of MDD With Impactor Pans in Position

A-50

(30-13

NHTSA

050413

PRE

Our Legacy
is Side Impact

Figure A-47 Pre-Test Primary Impact Point View

A-51

050413



NHTSA

050413

POST

TRE

Figure A-19 Post-Test Primary Impact Point View

A-32

050413

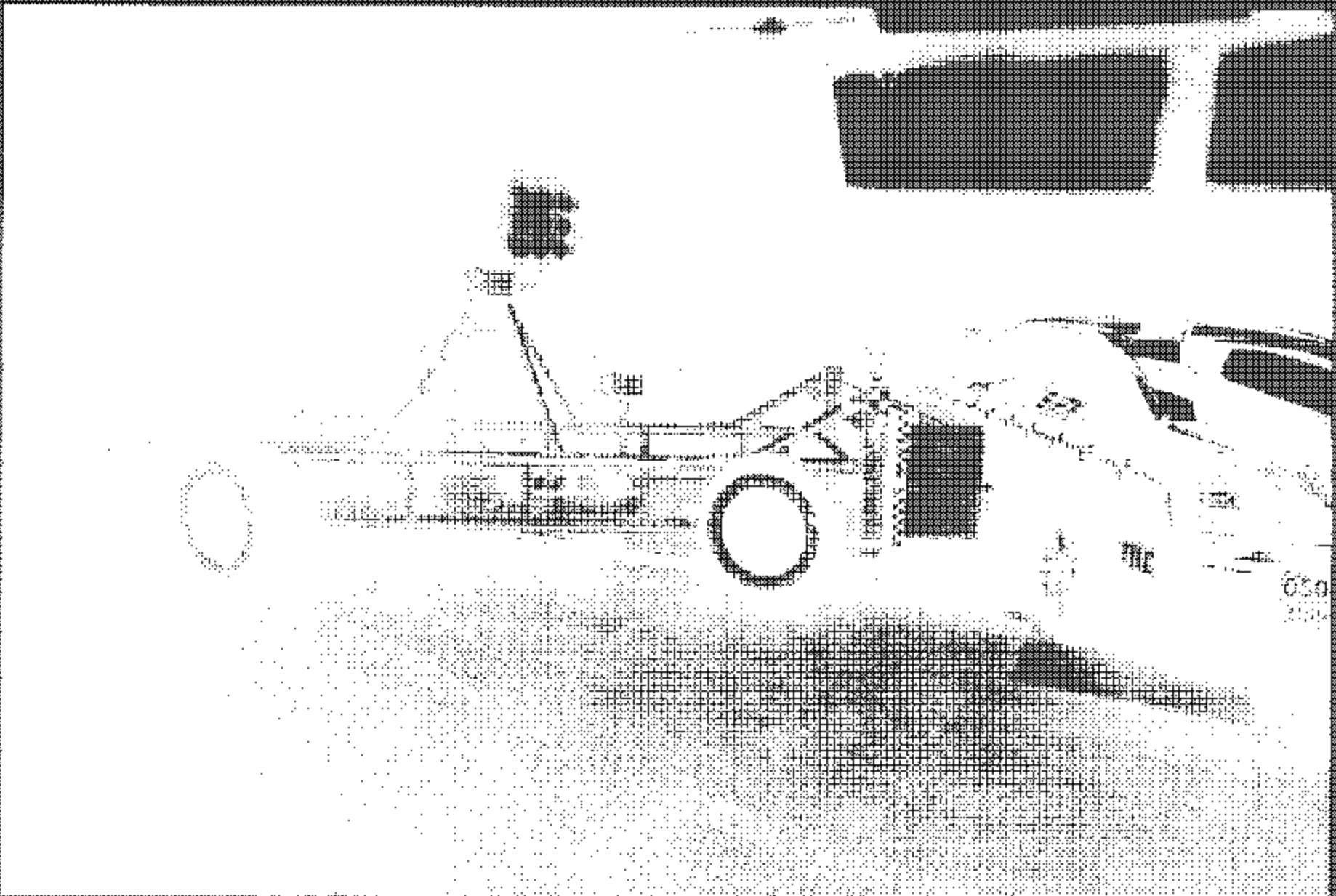


Figure A-49 Pre-Test Right Side View of M2B With Inspector Pads in Position

A-51

030413

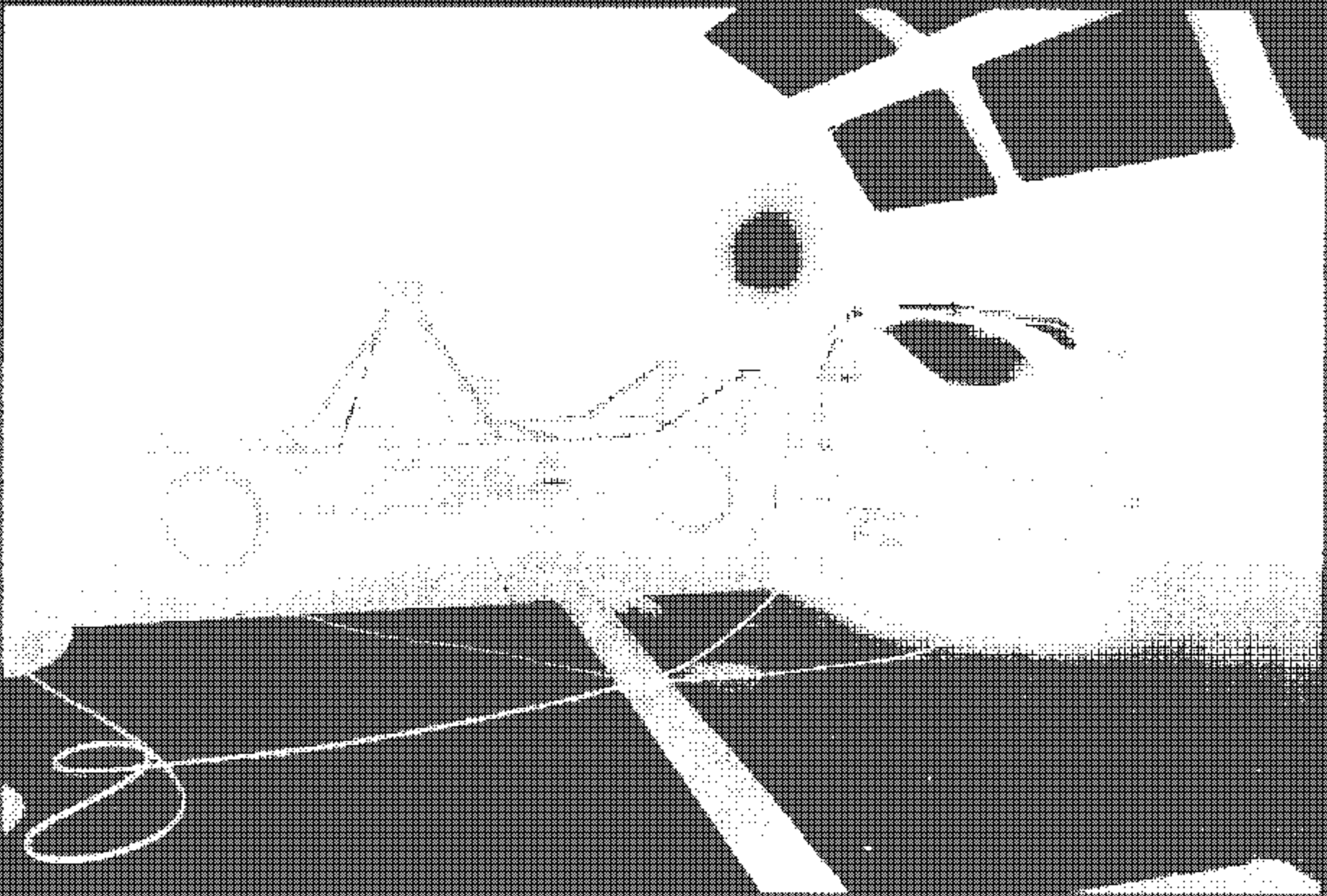


Figure A-59 Post-Treat Right Side View of MDRR With Inspector Face in Position

A-54

050413



Figure A-51. Pre-Ten Secondary Impact Road View

A-55

050913

NHTSA

050413

POST

TRC

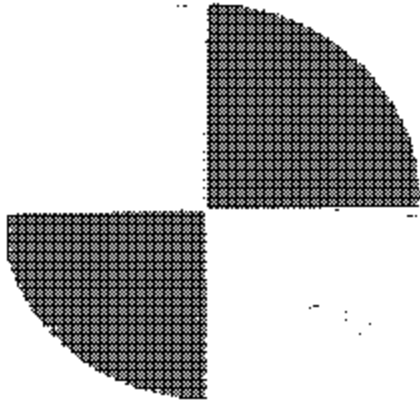


Figure A-53 Post-Test Secondary Impact Print View

A-56

050413

Brown A-55 In-Tank Vehicle Certification Label View

A-57


090413

MADE BY 2001 HEMET INDUSTRIES LTD. 2001 HEMET INDUSTRIES LTD.

CLASS: 2001 HEMET INDUSTRIES LTD. CLASS: 2001 HEMET INDUSTRIES LTD.

THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR VEHICLE
 SAFETY STANDARDS AND TEST PRESENTATION STANDARDS IN EFFECT ON
 THE DATE OF MANUFACTURE SHOWN ABOVE.

2001 HEMET INDUSTRIES LTD.



ASSOCIATED BY SUBSIDIARY OF HEMET INDUSTRIES LTD. 2001 HEMET INDUSTRIES LTD.

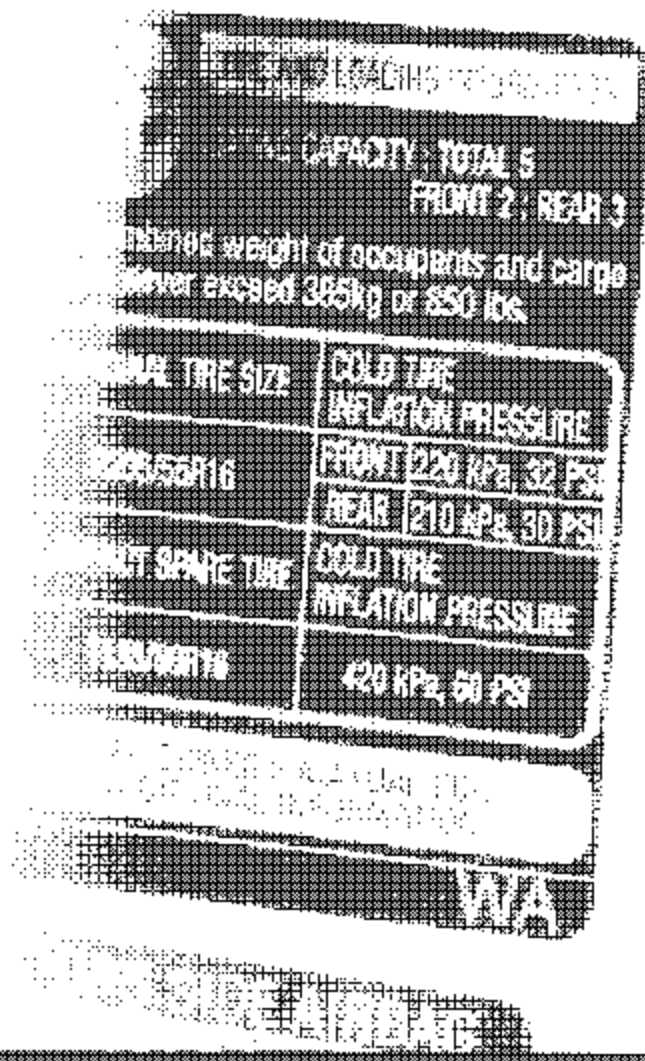


Figure A-54 Pre-Trip Vehicle Recommended Tire Pressure Label View

A-58

05/04/13

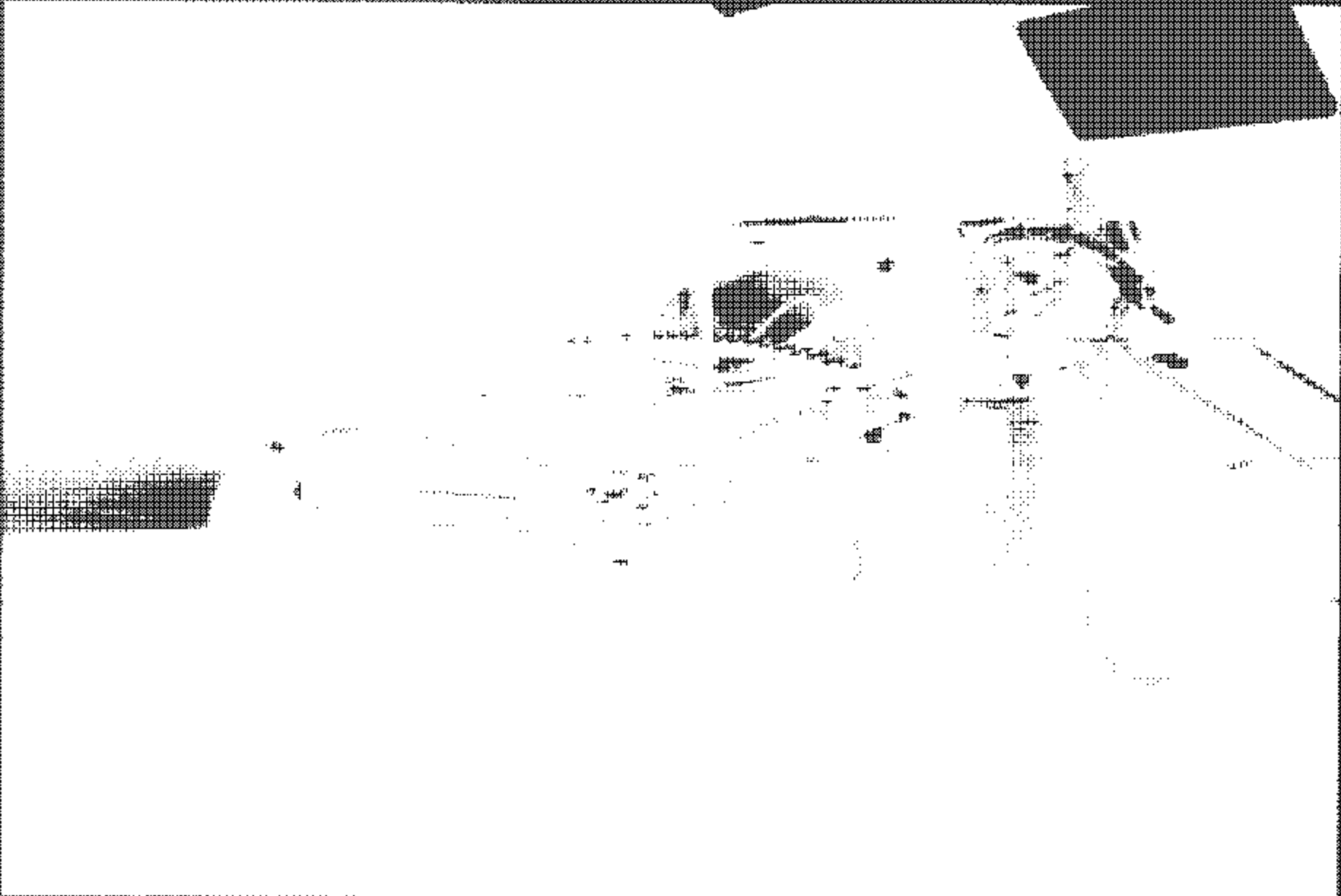
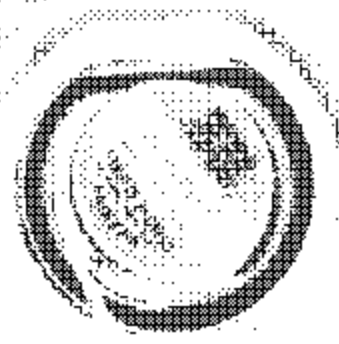


Figure A-55 Impact Event

A-59

05/04/13

NHTSA
DOT
FM
INC



7

Figure A-56. Pre-Tank Fuel Cap View

A-60

050413



Figure A-57 Part 1741 Rivet Cup View

A-61

05/04/13

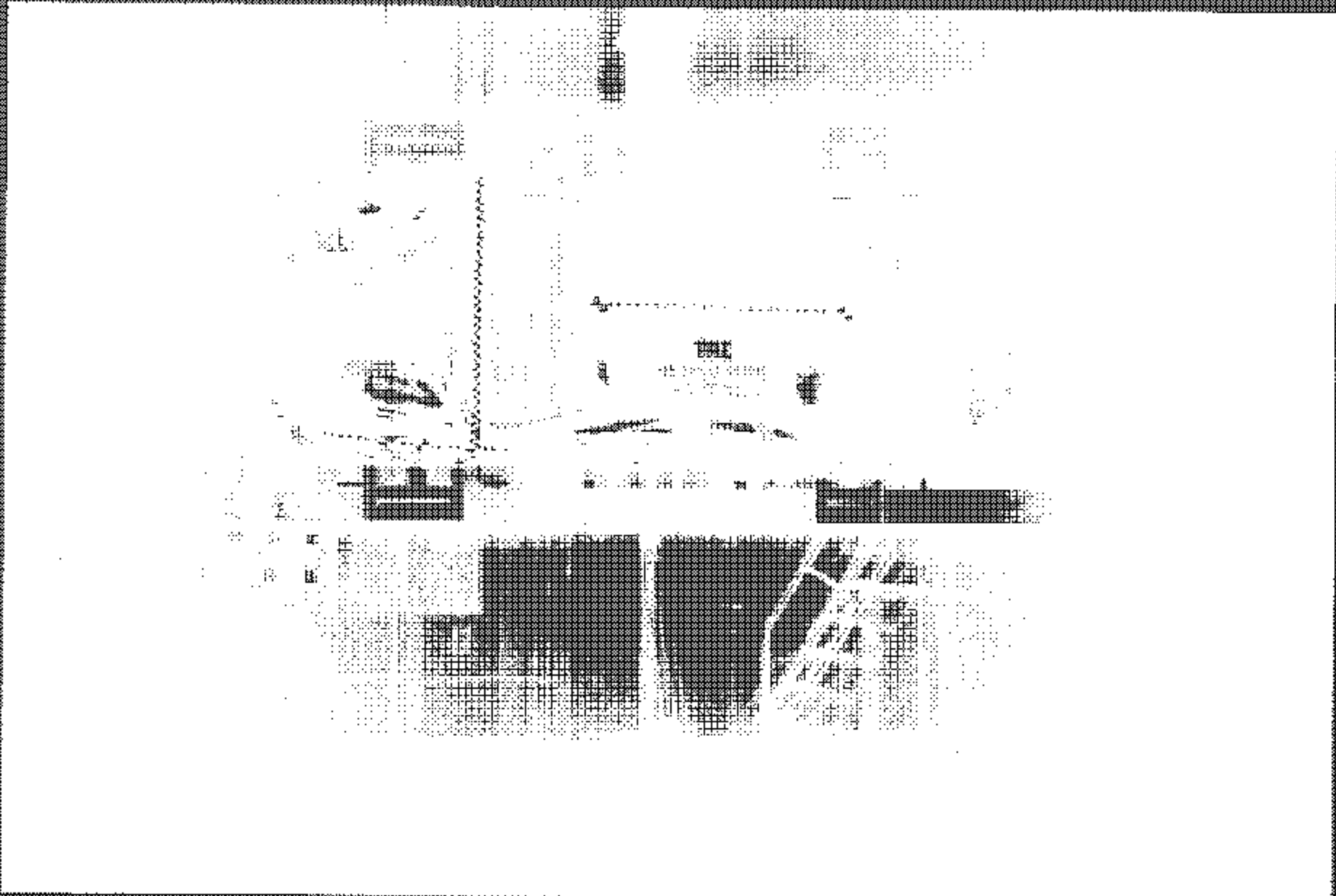


Figure A-58 EMVSS 301 Rollover View at 90°

A-62

030413

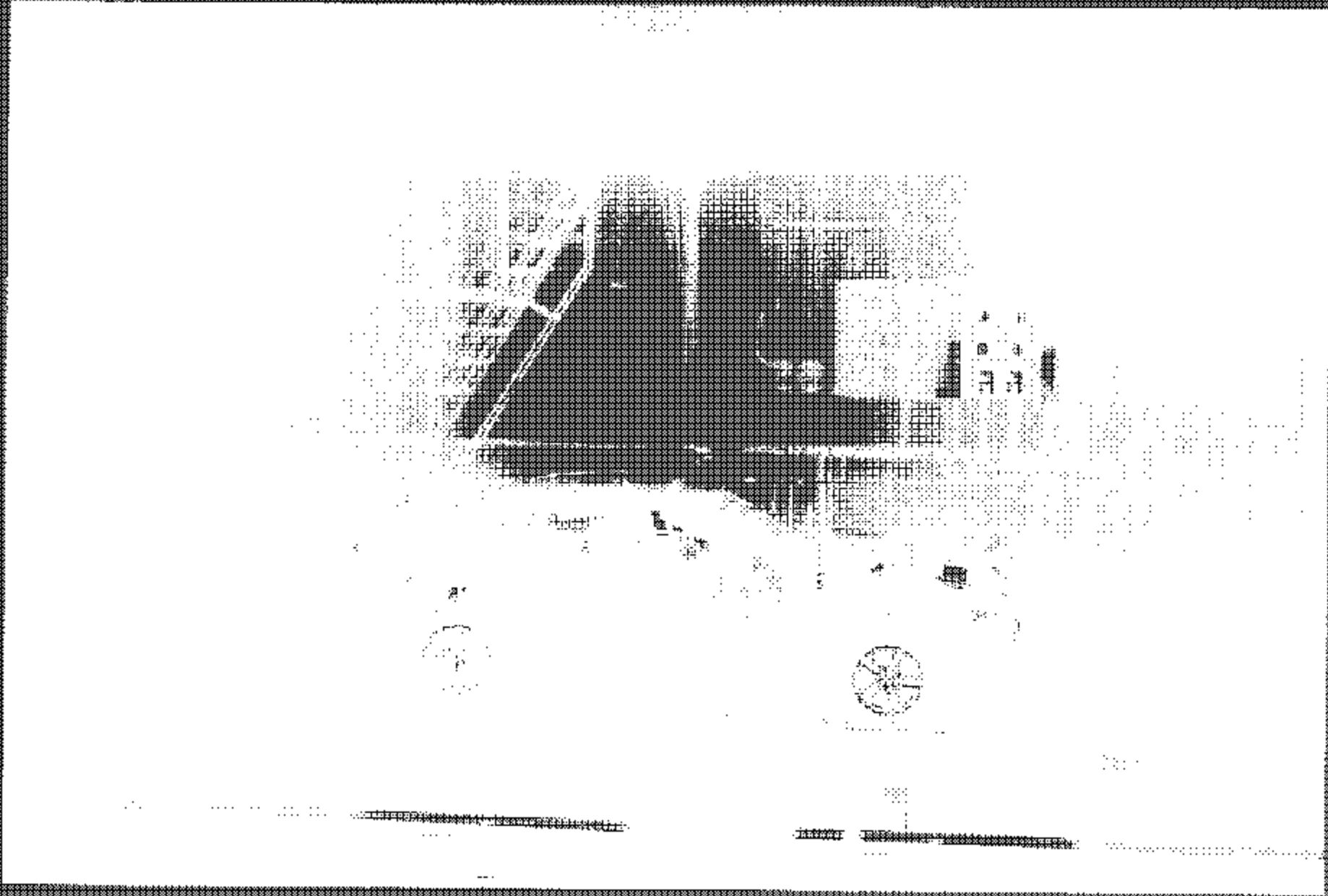


Figure A-59 TMYSS 301 Roller View at 180°



Figure A-60 EMVSS 301 Bellows View at 270°

A-64

000413

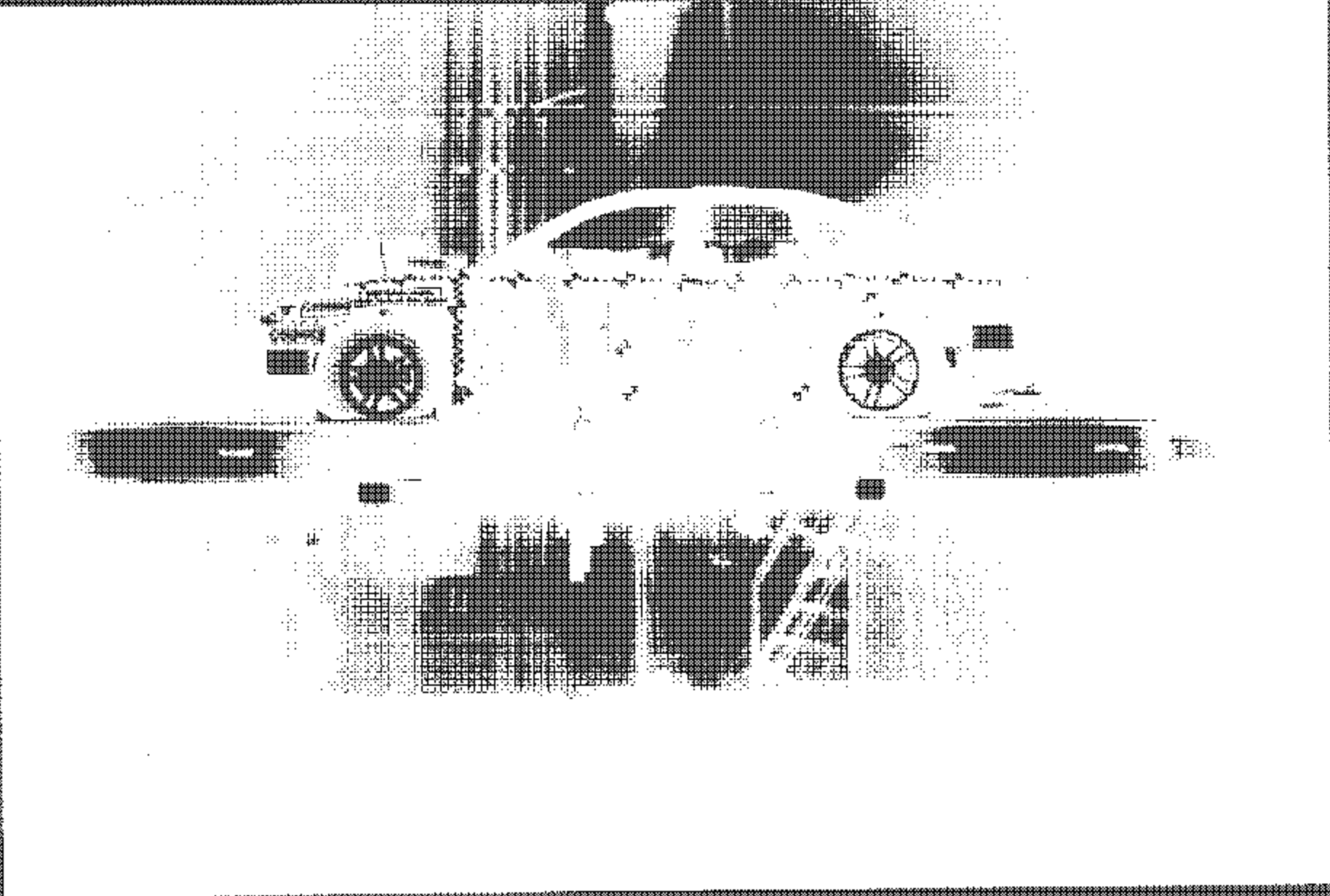


Figure A-61 INYSS 20X Roll-over View at 300°

A-61

050413

Appendix B

Data Plots

Table of Data Plots

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
1	Driver Upper Rib Y-Axis Acceleration	B-8
2	Driver Upper Rib Y-Axis Velocity	B-9
3	Driver Lower Rib Y-Axis Acceleration	B-10
4	Driver Lower Rib Y-Axis Velocity	B-11
5	Driver Lower Spine Y-Axis Acceleration	B-12
6	Driver Lower Spine Y-Axis Velocity	B-13
7	Driver Pelvis Y-Axis Acceleration	B-14
8	Driver Pelvis Y-Axis Velocity	B-15
9	Left Rear Passenger Upper Rib Y-Axis Acceleration	B-16
10	Left Rear Passenger Upper Rib Y-Axis Velocity	B-17
11	Left Rear Passenger Lower Rib Y-Axis Acceleration	B-18
12	Left Rear Passenger Lower Rib Y-Axis Velocity	B-19
13	Left Rear Passenger Lower Spine Y-Axis Acceleration	B-20
14	Left Rear Passenger Lower Spine Y-Axis Velocity	B-21
15	Left Rear Passenger Pelvis Y-Axis Acceleration	B-22
16	Left Rear Passenger Pelvis Y-Axis Velocity	B-23

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 1000 - Redundant

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
17	Driver Upper Rib Y-Axis Redundant Acceleration	B-25
18	Driver Upper Rib Y-Axis Redundant Velocity	B-26
19	Driver Lower Rib Y-Axis Redundant Acceleration	B-27
20	Driver Lower Rib Y-Axis Redundant Velocity	B-28
21	Driver Lower Spine Y-Axis Redundant Acceleration	B-29
22	Driver Lower Spine Y-Axis Redundant Velocity	B-30
23	Left Rear Passenger Upper Rib Y-Axis Redundant Acceleration	B-31

Table of Data Plots (Continued)

Driver and Passenger Dummy Instrumentation Plots (Continued)

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 180 - Redundant

24	Left Rear Passenger Upper Rib Y-Axis Redundant Velocity	B-32
25	Left Rear Passenger Lower Rib Y-Axis Redundant Acceleration	B-33
26	Left Rear Passenger Lower Rib Y-Axis Redundant Velocity	B-34
27	Left Rear Passenger Lower Spine Y-Axis Redundant Acceleration	B-35
28	Left Rear Passenger Lower Spine Y-Axis Redundant Velocity	B-36

Test Vehicle Instrumentation Plots

Acceleration Data - Filter Class 60

Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
29	Right Side Sill At Front Seat X-Axis Acceleration	B-38
30	Right Side Sill At Front Seat X-Axis Velocity	B-39
31	Right Side Sill At Front Seat Y-Axis Acceleration	B-40
32	Right Side Sill At Front Seat Y-Axis Velocity	B-41
33	Right Side Sill At Front Seat Z-Axis Acceleration	B-42
34	Right Side Sill At Front Seat Z-Axis Velocity	B-43
35	Right Side Sill At Front Seat Resultant Acceleration	B-44
36	Right Side Sill At Rear Seat X-Axis Acceleration	B-45
37	Right Side Sill At Rear Seat X-Axis Velocity	B-46
38	Right Side Sill At Rear Seat Y-Axis Acceleration	B-47
39	Right Side Sill At Rear Seat Y-Axis Velocity	B-48
40	Right Side Sill At Rear Seat Z-Axis Acceleration	B-49
41	Right Side Sill At Rear Seat Z-Axis Velocity	B-50
42	Right Side Sill At Rear Seat Resultant Acceleration	B-51
43	Rear Floorpan Above Axle X-Axis Acceleration	B-52
44	Rear Floorpan Above Axle X-Axis Velocity	B-53
45	Rear Floorpan Above Axle Y-Axis Acceleration	B-54
46	Rear Floorpan Above Axle Y-Axis Velocity	B-55
47	Rear Floorpan Above Axle Z-Axis Acceleration	B-56

Table of Data Plots (Continued)
 Test Vehicle Instrumentation Plots (Continued)
 Acceleration Data - Filter Class 60
 Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
48	Rear Floorpan Above Axle Z-Axis Velocity	B-57
49	Rear Floorpan Above Axle Resultant Acceleration	B-58
50	Left Side Sill At Front Seat Y-Axis Acceleration	B-59
51	Left Side Sill At Front Seat Y-Axis Velocity	B-60
52	Left Side Sill At Rear Seat Y-Axis Acceleration	B-61
53	Left Side Sill At Rear Seat Y-Axis Velocity	B-62
54	Right Rear Occupant Compartment Y-Axis Acceleration	B-63
55	Right Rear Occupant Compartment Y-Axis Velocity	B-64
56	Left Lower A-Post Y-Axis Acceleration	B-65
57	Left Lower A-Post Y-Axis Velocity	B-66
58	Left Middle A-Post Y-Axis Acceleration	B-67
59	Left Middle A-Post Y-Axis Velocity	B-68
60	Left Lower B-Post Y-Axis Acceleration	B-69
61	Left Lower B-Post Y-Axis Velocity	B-70
62	Left Middle B-Post Y-Axis Acceleration	B-71
63	Left Middle B-Post Y-Axis Velocity	B-72
64	Left Front Seat Track Y-Axis Acceleration	B-73
65	Left Front Seat Track Y-Axis Velocity	B-74
66	Left Rear Seat Track Y-Axis Acceleration	B-75
67	Left Rear Seat Track Y-Axis Velocity	B-76
68	Vehicle Center Of Gravity X-Axis Acceleration	B-77
69	Vehicle Center Of Gravity X-Axis Velocity	B-78
70	Vehicle Center Of Gravity Y-Axis Acceleration	B-79
71	Vehicle Center Of Gravity Y-Axis Velocity	B-80
72	Vehicle Center Of Gravity Z-Axis Acceleration	B-81
73	Vehicle Center Of Gravity Z-Axis Velocity	B-82
74	Vehicle Center Of Gravity Resultant Acceleration	B-83

Table of Data Plots (Continued)

MDB Instrumentation Plots
Acceleration Data - Filter Class 60
Integration Data - Filter Class 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
75	MDB Center Of Gravity X-Axis Acceleration	B-85
76	MDB Center Of Gravity X-Axis Velocity	B-86
77	MDB Center Of Gravity Y-Axis Acceleration	B-87
78	MDB Center Of Gravity Y-Axis Velocity	B-88
79	MDB Center Of Gravity Z-Axis Acceleration	B-89
80	MDB Center Of Gravity Z-Axis Velocity	B-90
81	MDB Center Of Gravity Resultant Acceleration	B-91
82	MDB Rear X-Axis Acceleration	B-92
83	MDB Rear X-Axis Velocity	B-93
84	MDB Rear Y-Axis Acceleration	B-94
85	MDB Rear Y-Axis Velocity	B-95
86	MDB Right Side Contact Switch	B-96
87	MDB Left Side Contact Switch	B-97

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
88	Driver Upper Rib Y-Axis Acceleration	B-99
89	Driver Lower Rib Y-Axis Acceleration	B-100
90	Driver Lower Spine Y-Axis Acceleration	B-101
91	Driver Pelvis Y-Axis Acceleration	B-102
92	Passenger Upper Rib Y-Axis Acceleration	B-103
93	Passenger Lower Rib Y-Axis Acceleration	B-104
94	Passenger Lower Spine Y-Axis Acceleration	B-105
95	Passenger Pelvis Y-Axis Acceleration	B-106

Table of Data Plots (Continued)
Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered - Redundant

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
96	Driver Upper Rib Y-Axis Redundant Acceleration	B-108
97	Driver Lower Rib Y-Axis Redundant Acceleration	B-109
98	Driver Lower Spine Y-Axis Redundant Acceleration	B-110
99	Passenger Upper Rib Y-Axis Redundant Acceleration	B-111
100	Passenger Lower Rib Y-Axis Redundant Acceleration	B-112
101	Passenger Lower Spine Y-Axis Redundant Acceleration	B-113

Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000

Integration Data - Filter Class 180

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

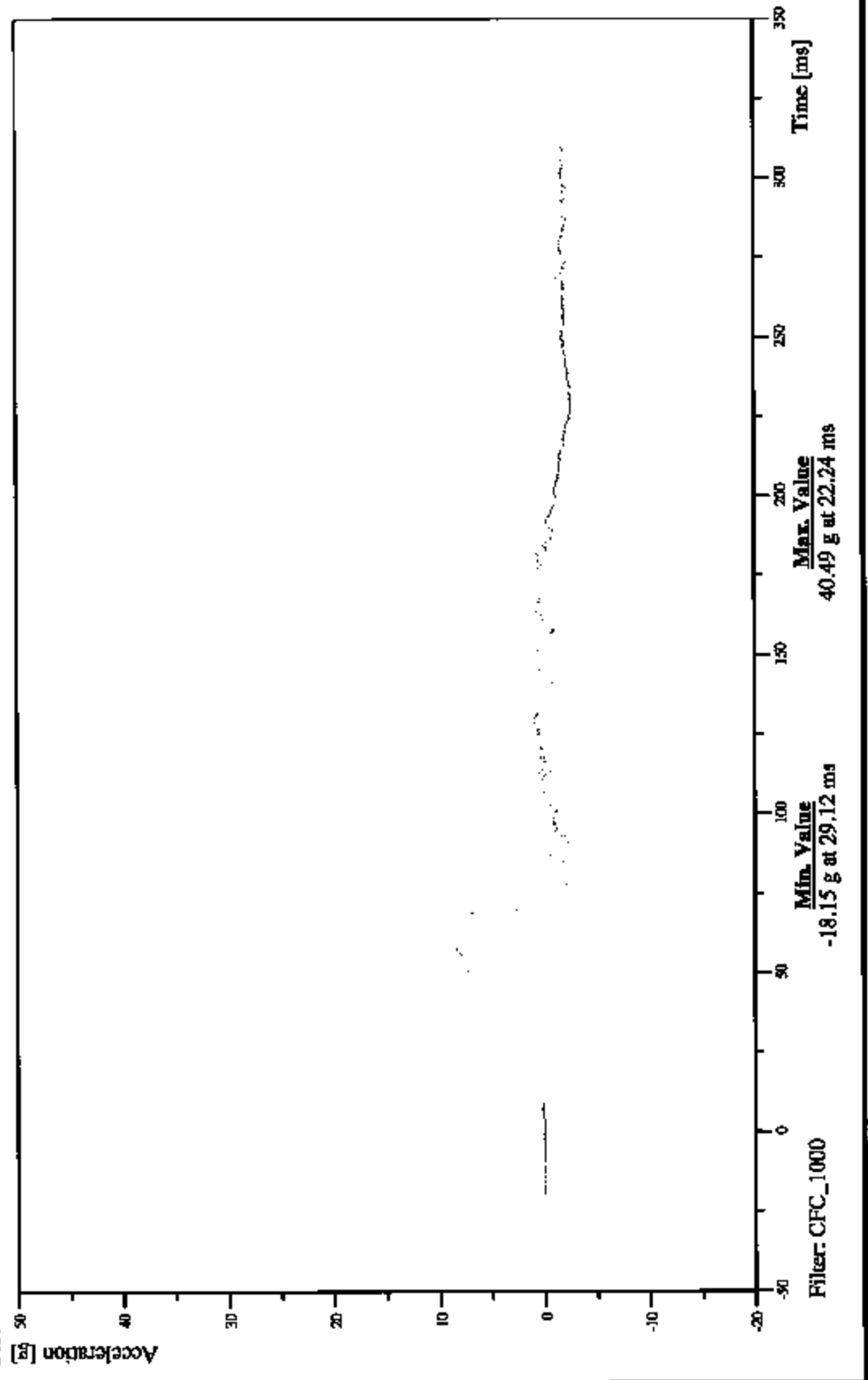
Time: 11:01

DRIVER UPPER RIB CY ACCELERATION VS TIME

TRC Inc. Test Lab: CTF
Test Number: 050413

Customer: NHTSA
Test Number: C55500

LURYGI



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Time: 11:31

DRIVER UPPER RUB CO VELOCITY VS TIME

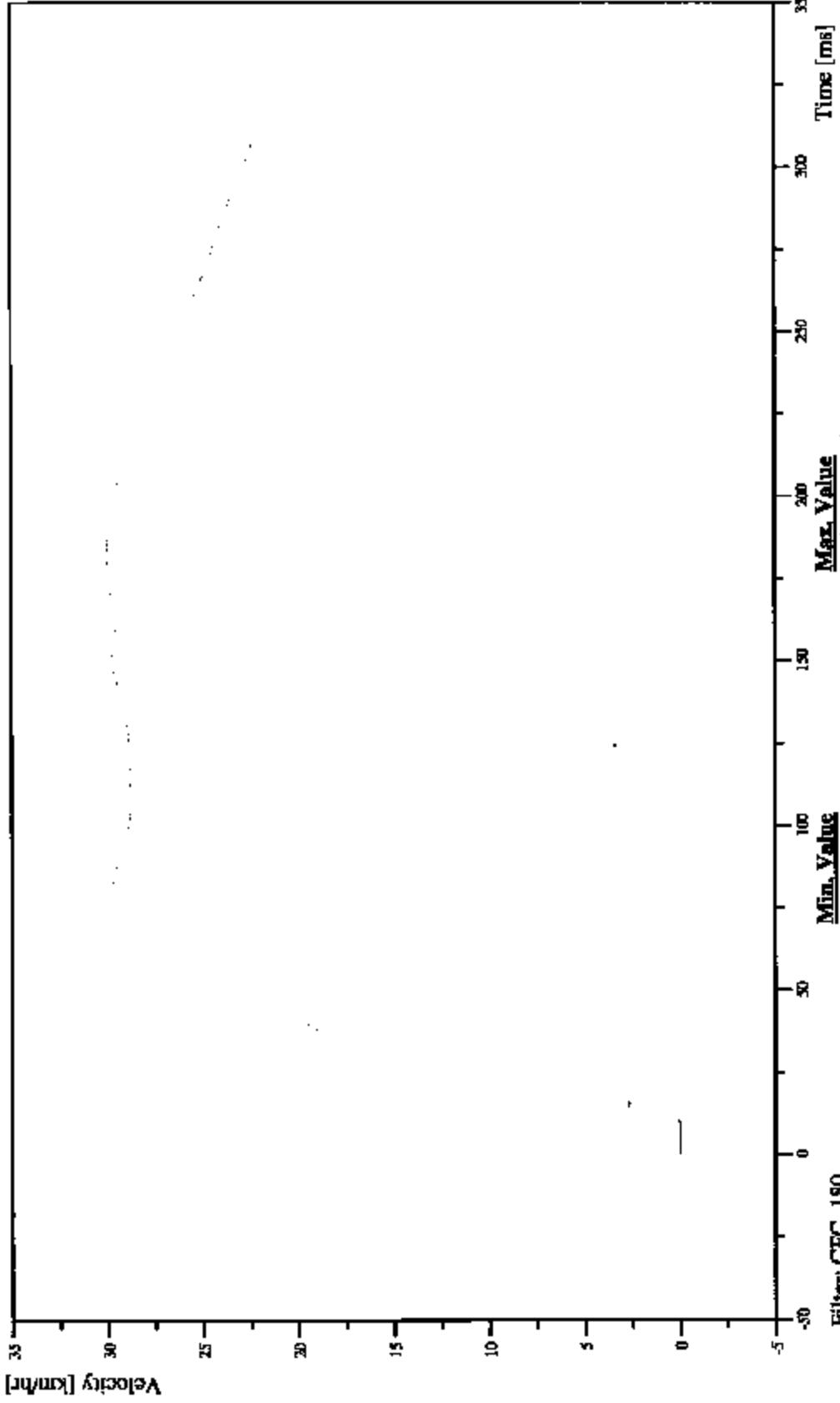
Customer: NHTSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

LURYV1



Max. Value
30.49 km/hr at 71.76 ms

Min. Value
0.00 km/hr at 1.28 ms

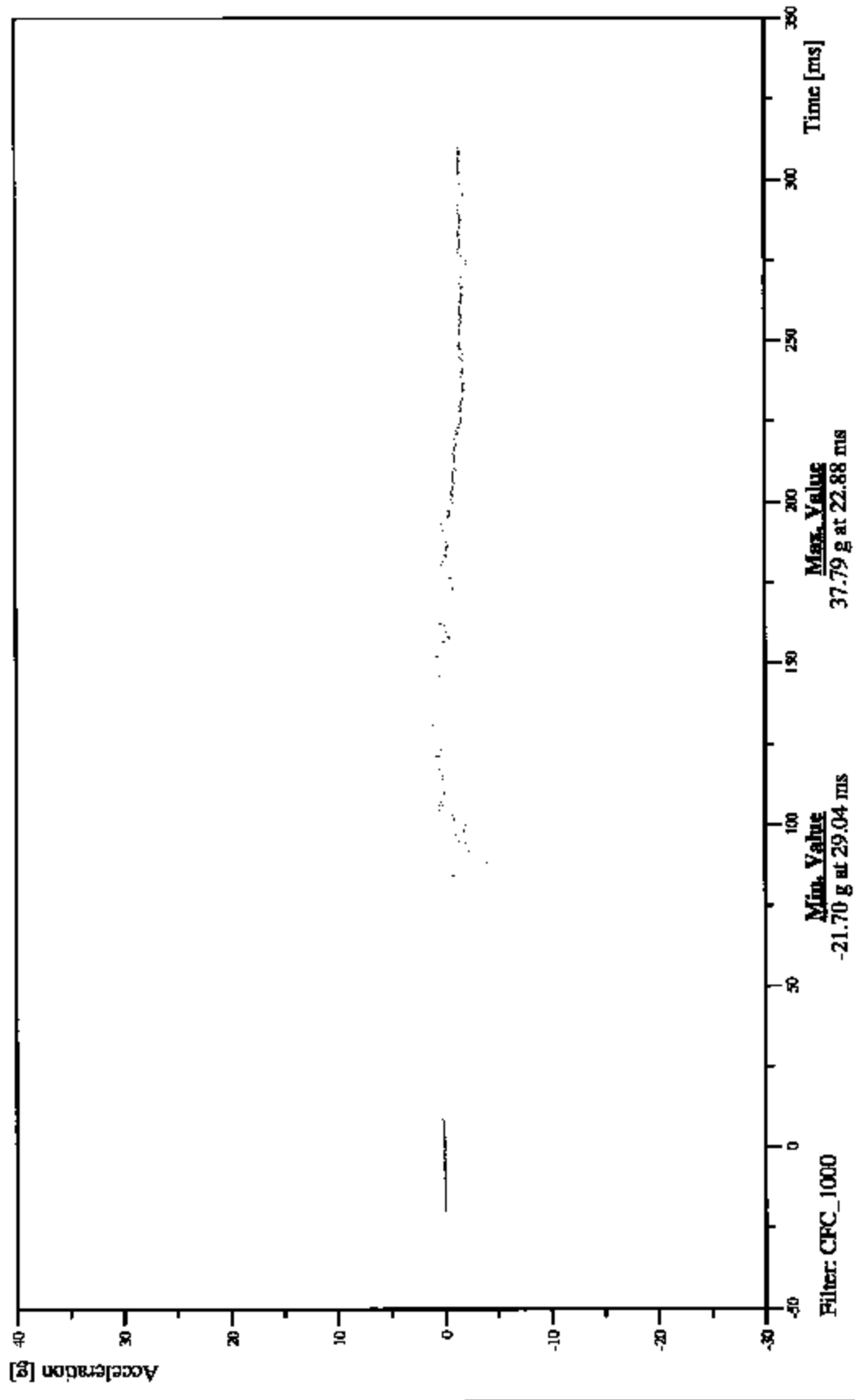
48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 1:51

DRIVER LOWER RIB CRY ACCELERATION VS TIME

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LLRYG1

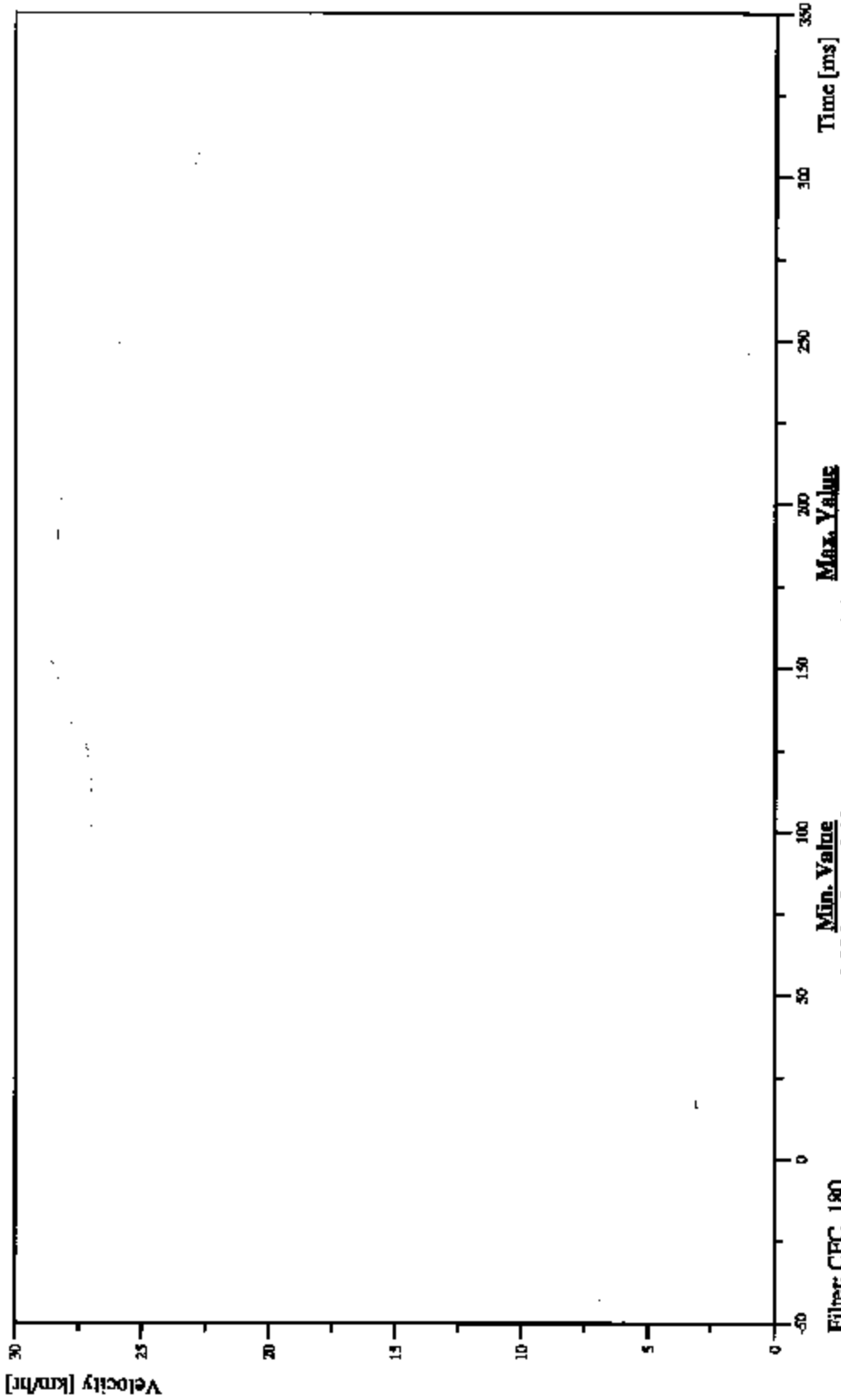


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
DRIVER LOWER RIB (Y) VELOCITY VS TIME

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LLRYV1

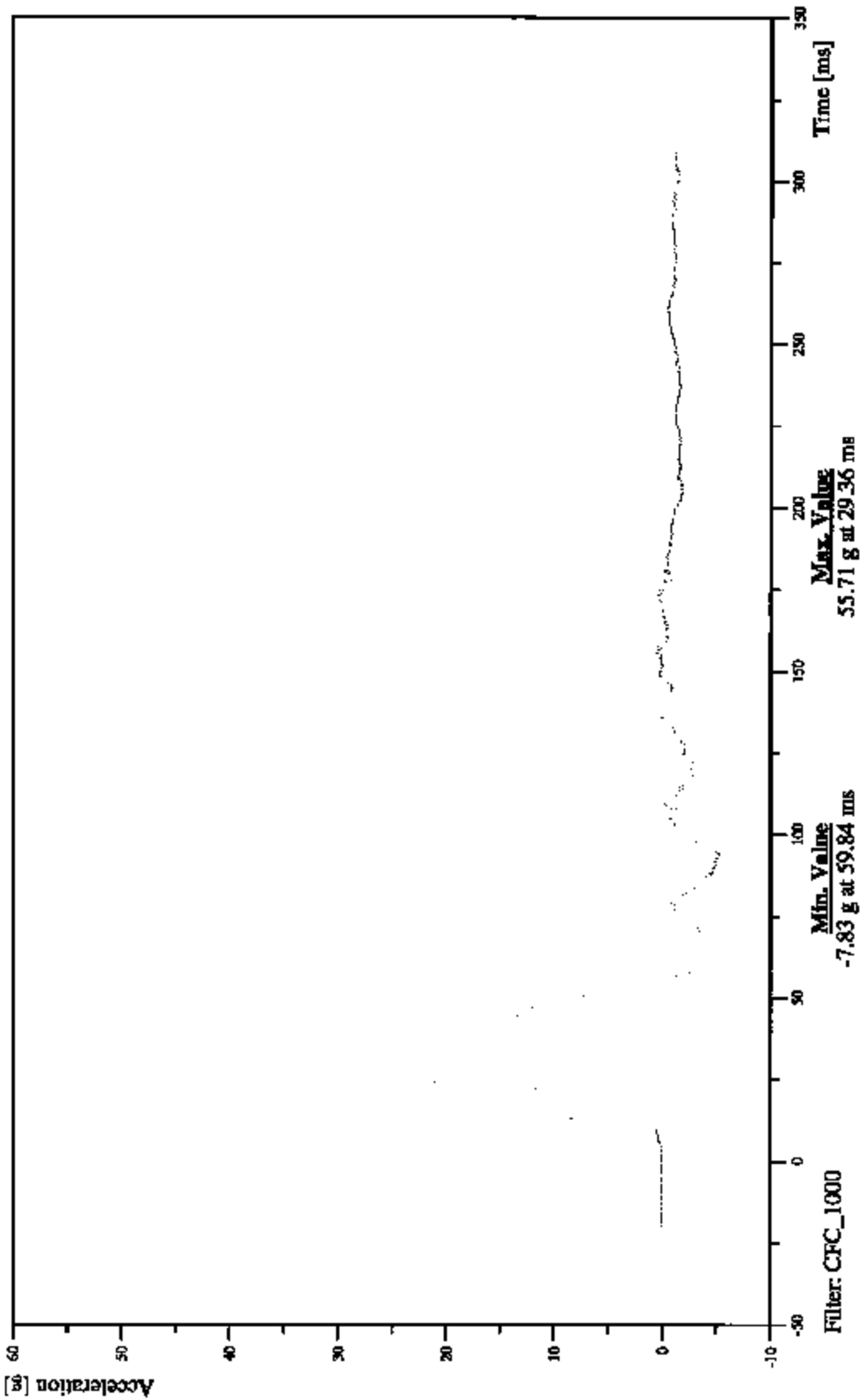


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:50
DRIVER LOWER SPINE (C) ACCELERATION VS TIME

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

T12YG1



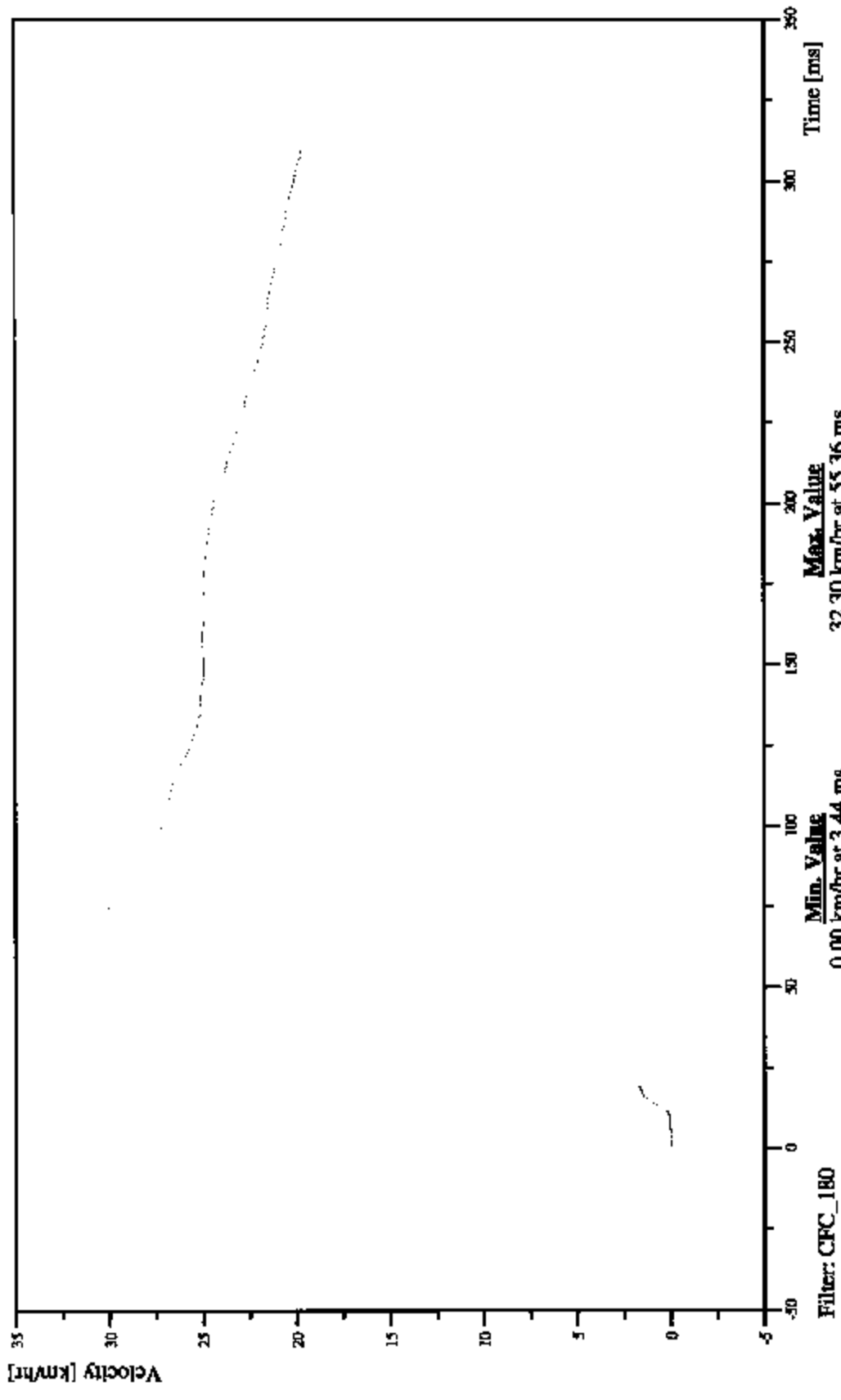
48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
DRIVER LOWER SPINE CO. VELOCITY VS. TIME

04/07/2005
Time: 11:01

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

T12YV1

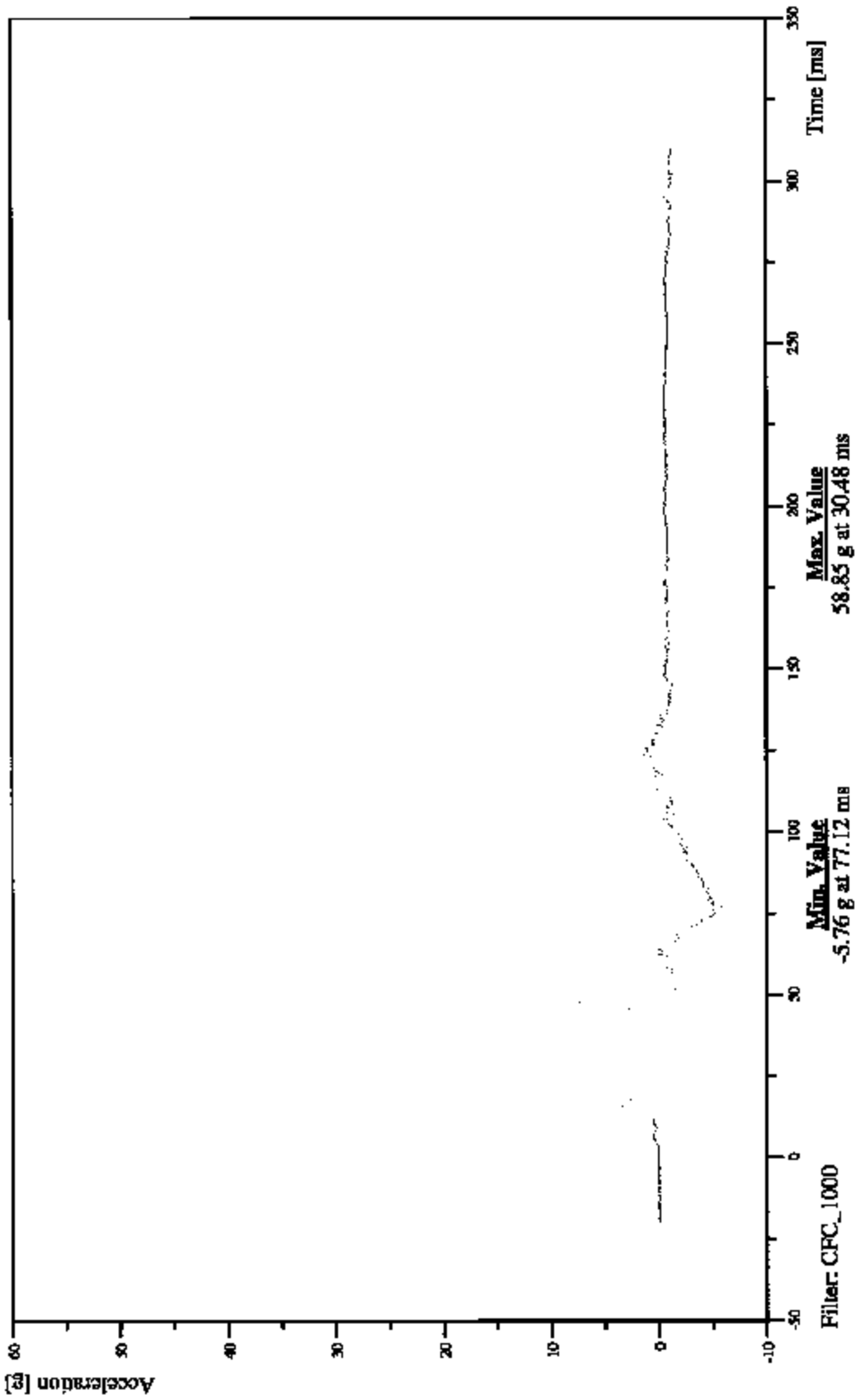


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:00
DRIVER PELVIC YZ ACCELERATION VS TIME

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

PEVYG1



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

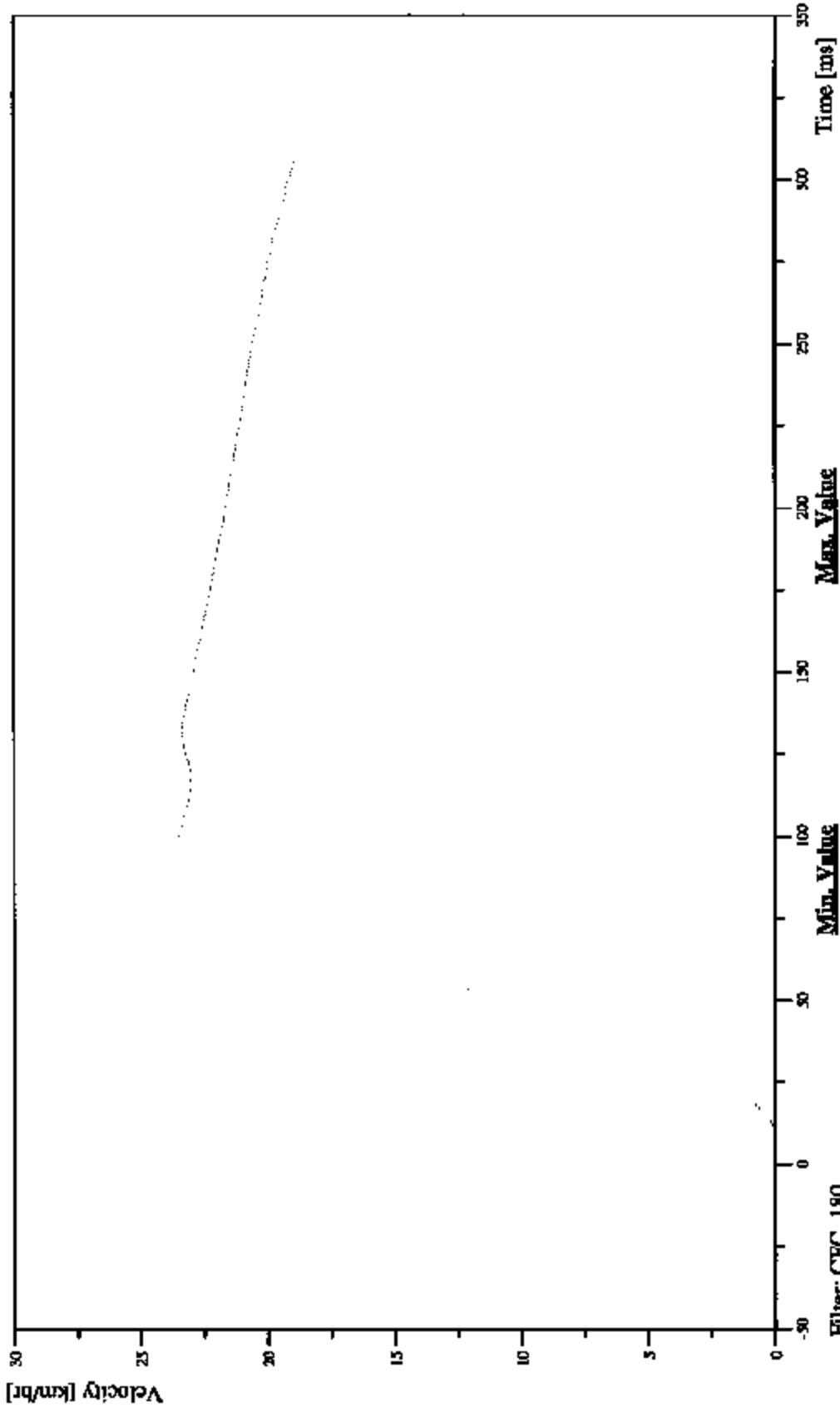
Time: 11:01

DRIVER PELVIC CO VELOCITY VS TIME

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

PEVYV1



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Time: 11:00

PASSENGER UPPER RIB (Y) ACCELERATION VS TIME

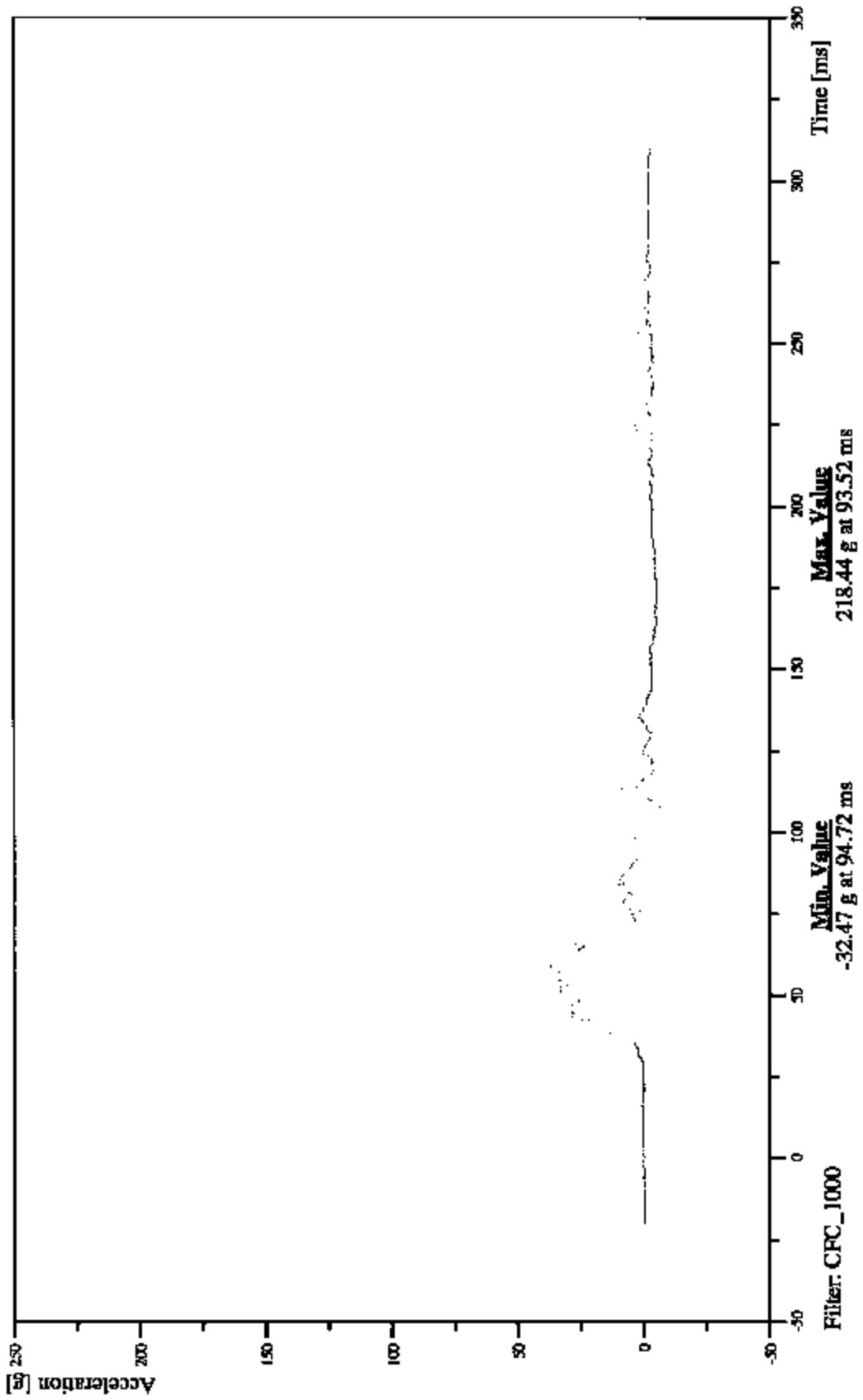
Customer: NHTSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

LURYG4



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

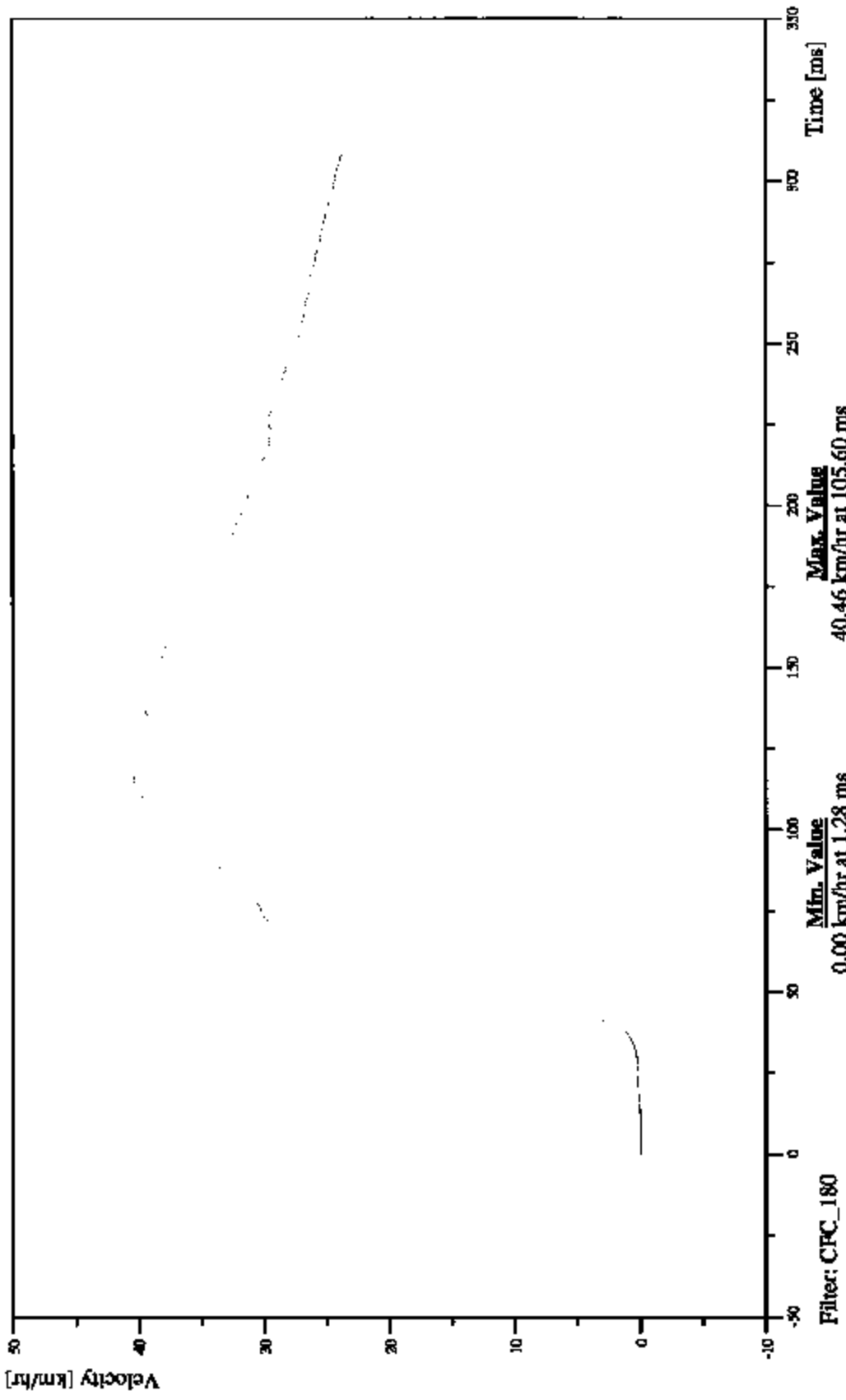
04-07-2005
Time: 1:01

PASSENGER UPPER RIB (Y) VELOCITY VS TIME

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LURYV4



Filter: CFC_180

Min. Value
0.00 km/hr at 1.28 ms

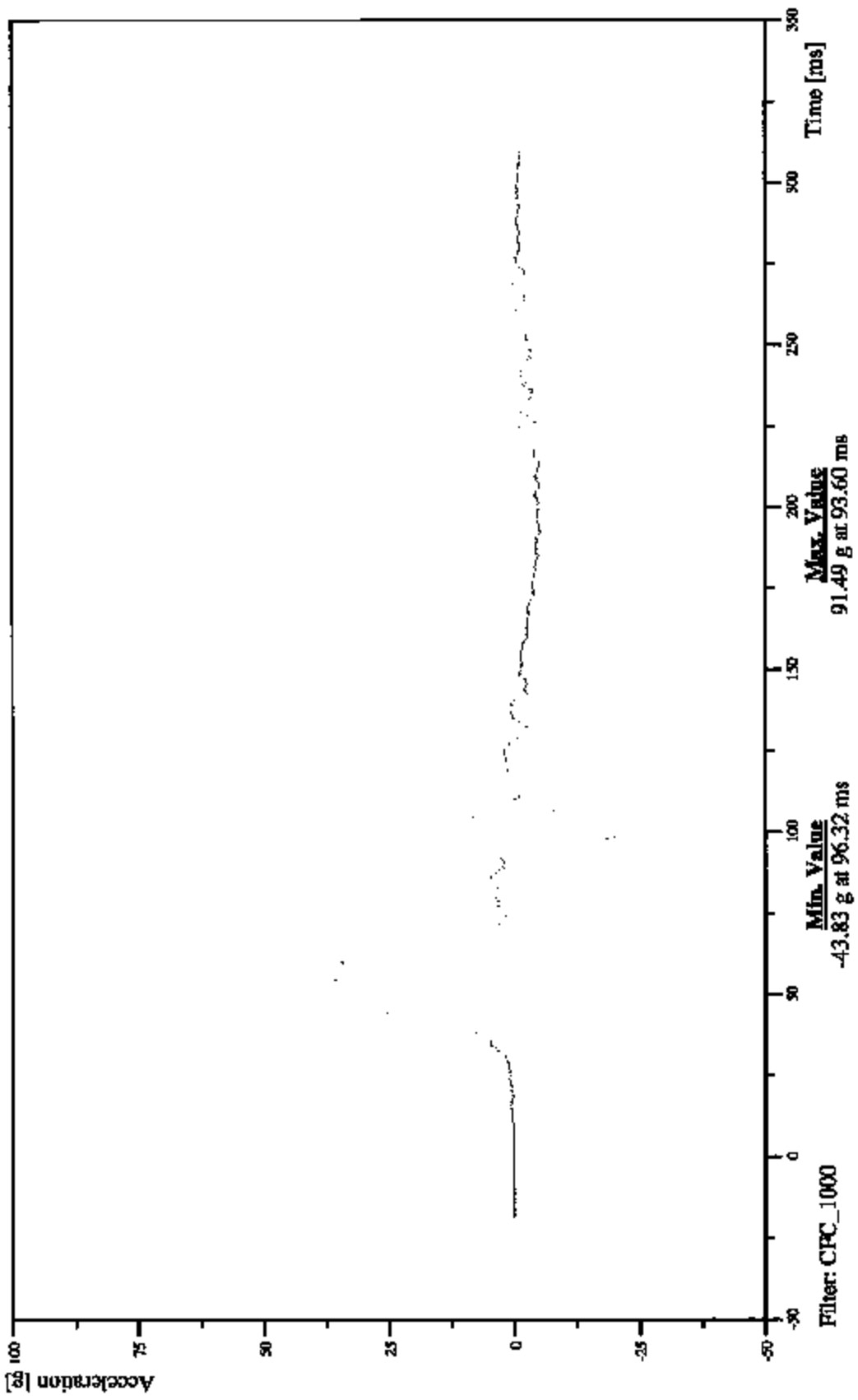
Max. Value
40.46 km/hr at 105.60 ms

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:00
PASSENGER LOWER RIB CO. ACCELERATION VS. TIME

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LLRYG4

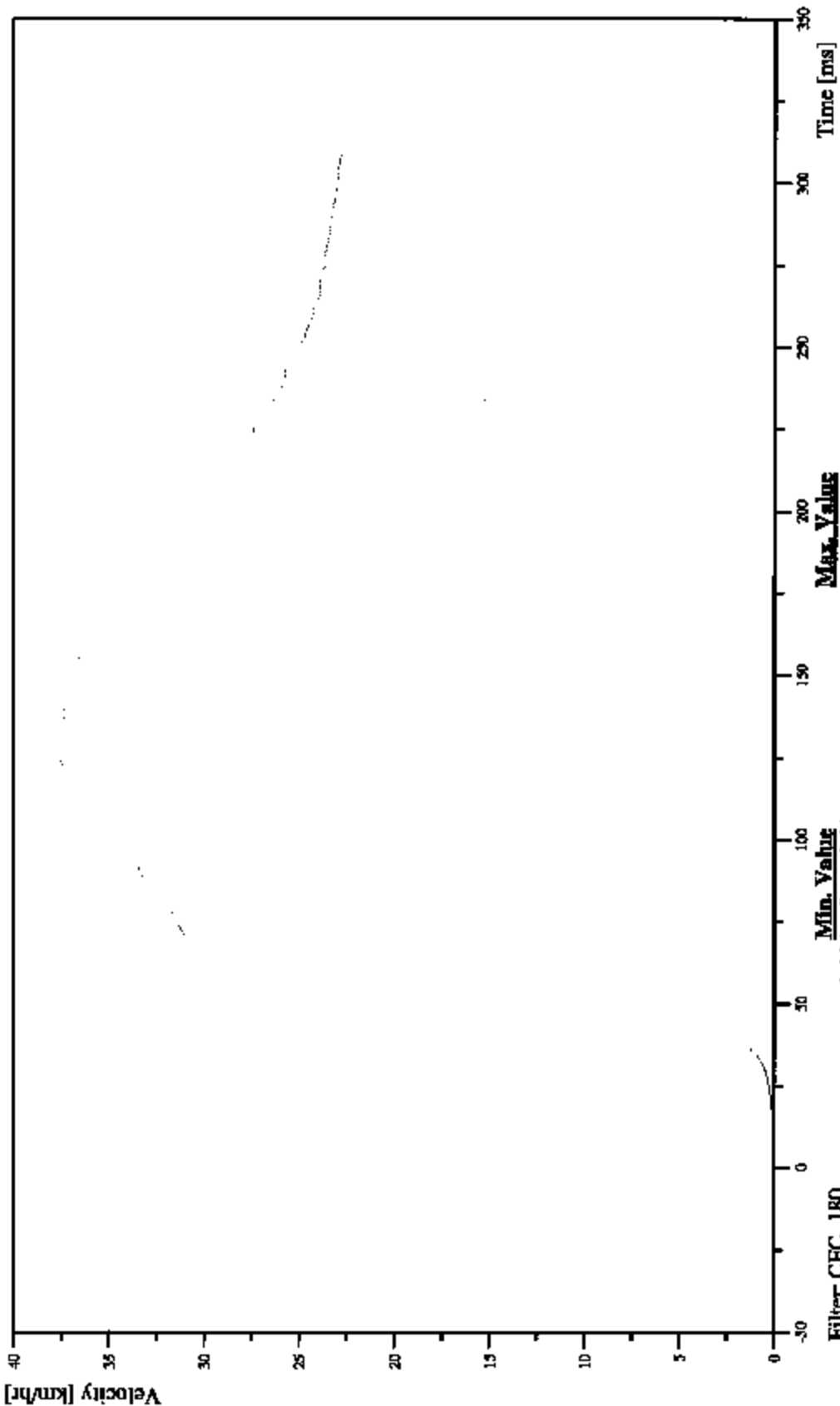


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
PASSENGER LOWER RIB (X) VELOCITY VS TIME

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LLRYV4

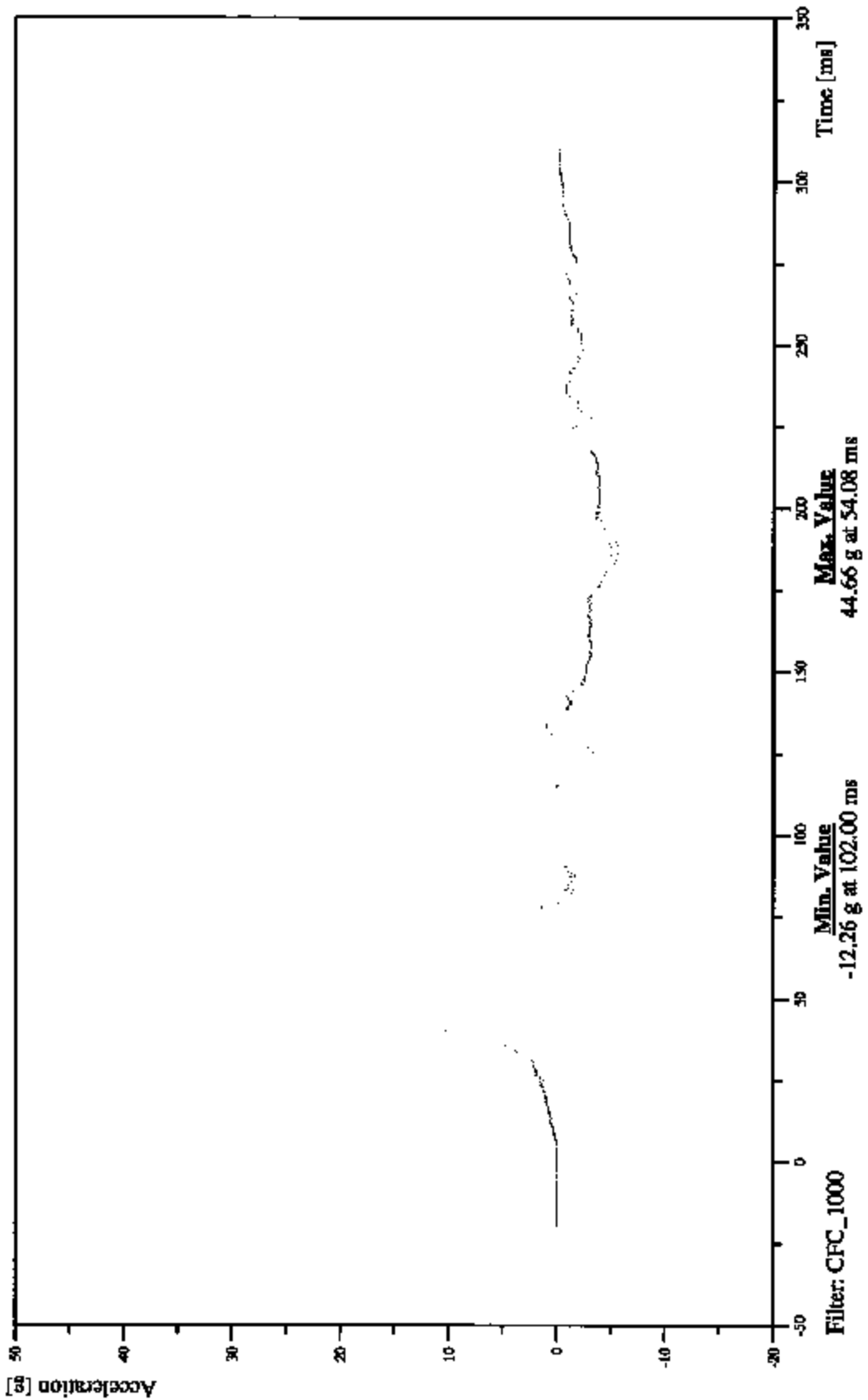


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
PASSENGER LOWER SPINE (Y) ACCELERATION VS. TIME

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

T12YG4

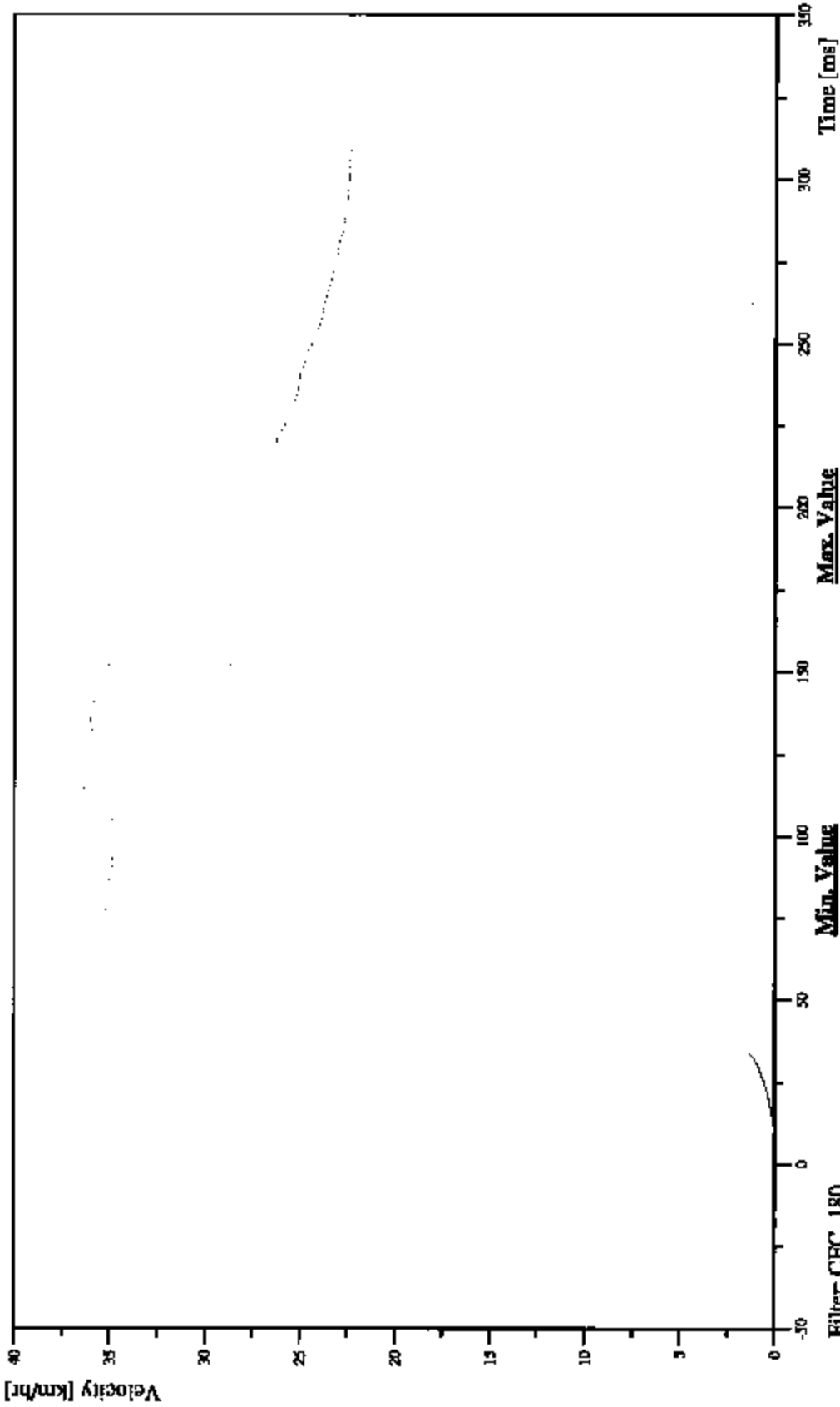


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
PASSENGER LOWER SPINE (Y) VELOCITY VS TIME

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

T12YV4



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

04/07/2005

Time: 11:01

PASSENGER PELVIC (Y) ACCELERATION VS TIME

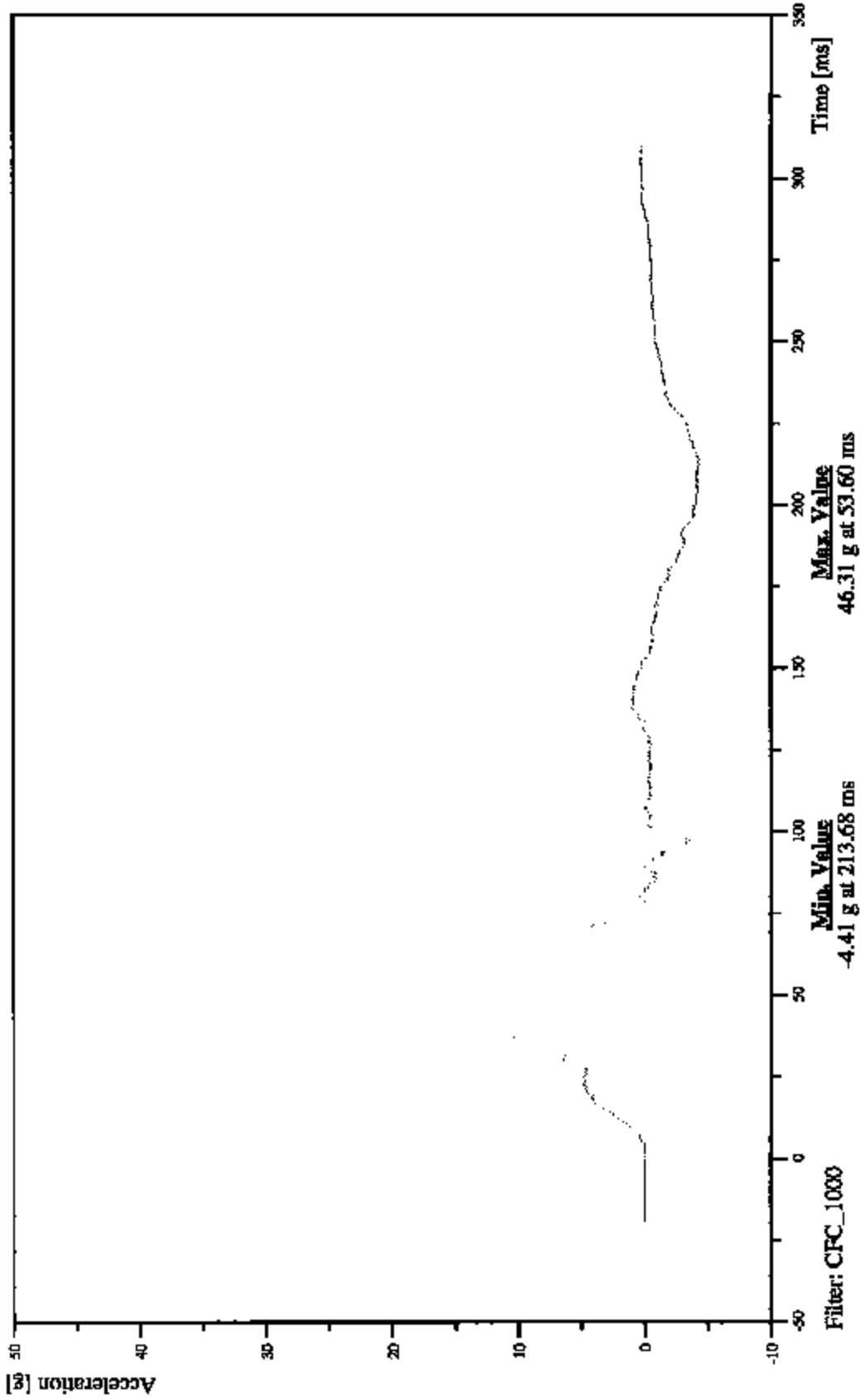
Customer: NHTSA

Test Number: C55500

TRC Ins. Test Lab: CTF

Test Number: 050413

PEVYG4

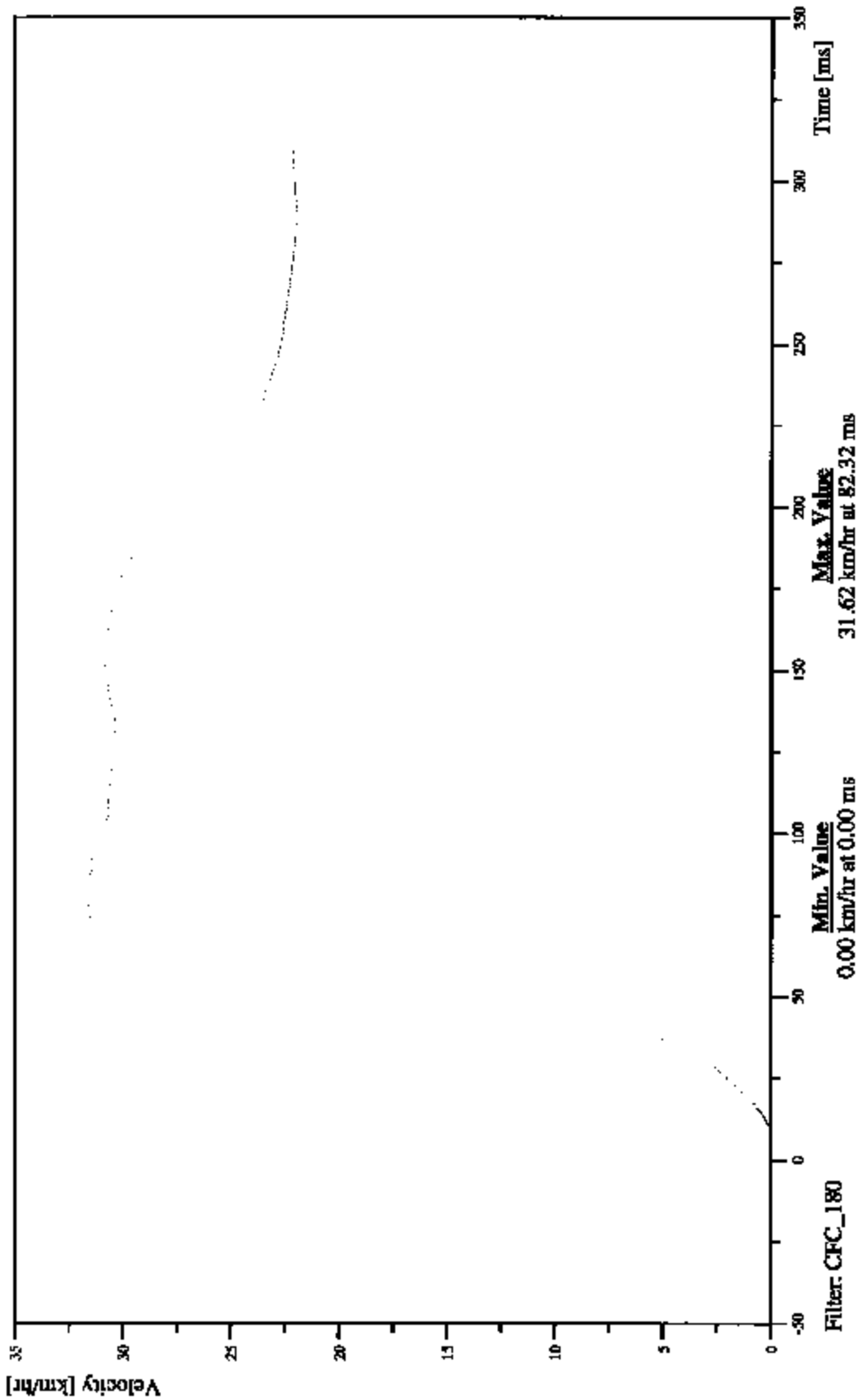


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
PASSENGER PELVIC (Y) VELOCITY VS TIME

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

PEVYV4



Driver and Passenger Dummy Instrumentation Plots

Acceleration Data - Filter Class 1000 - Redundant

Integration Data - Filter Class 180 - Redundant

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

04/07/2005
Time: 11:01

DRIVER UPPER RIB (Y) ACCELERATION VS. TIME REDUNDANT

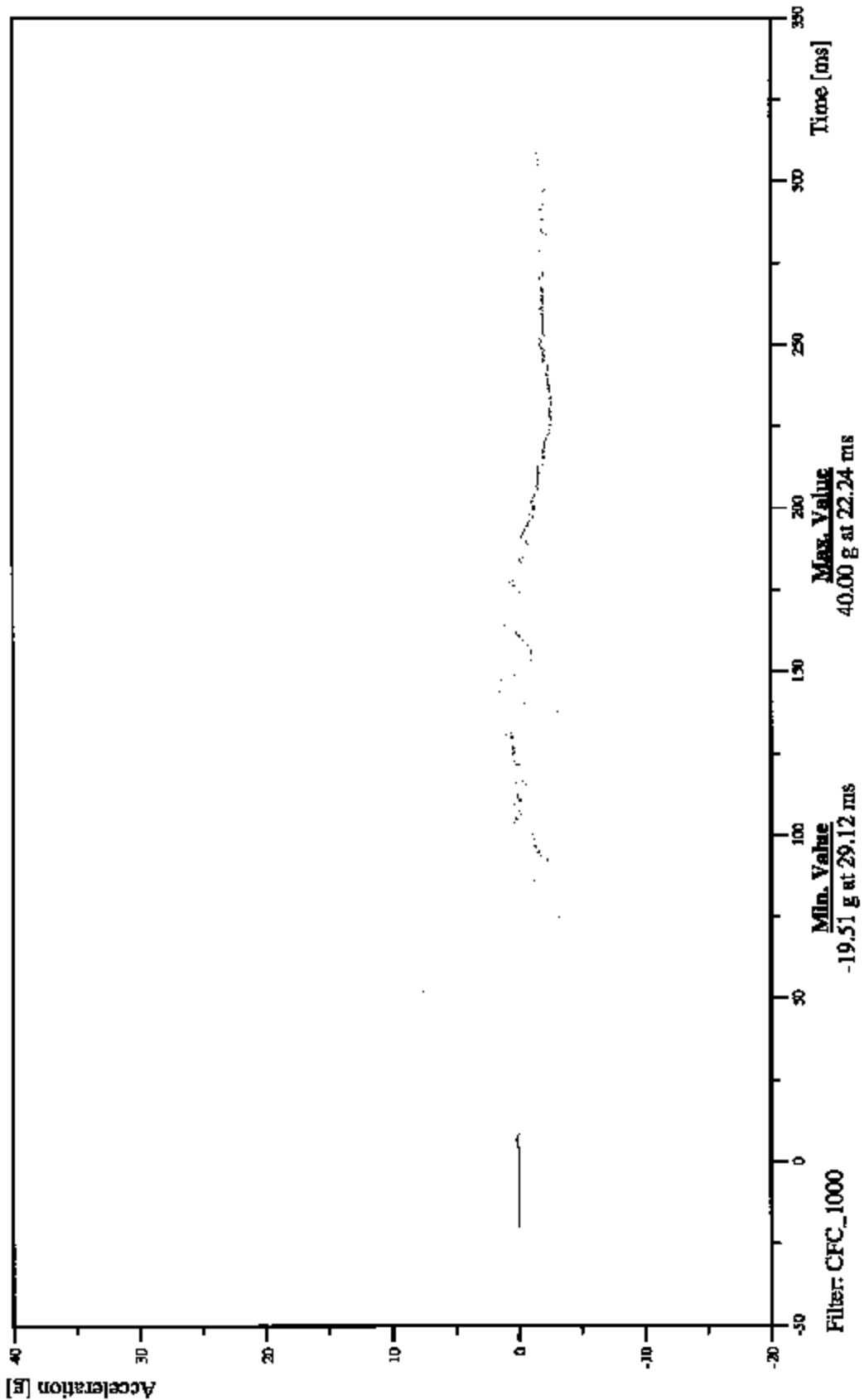
Customer: NHTSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

LURYR1

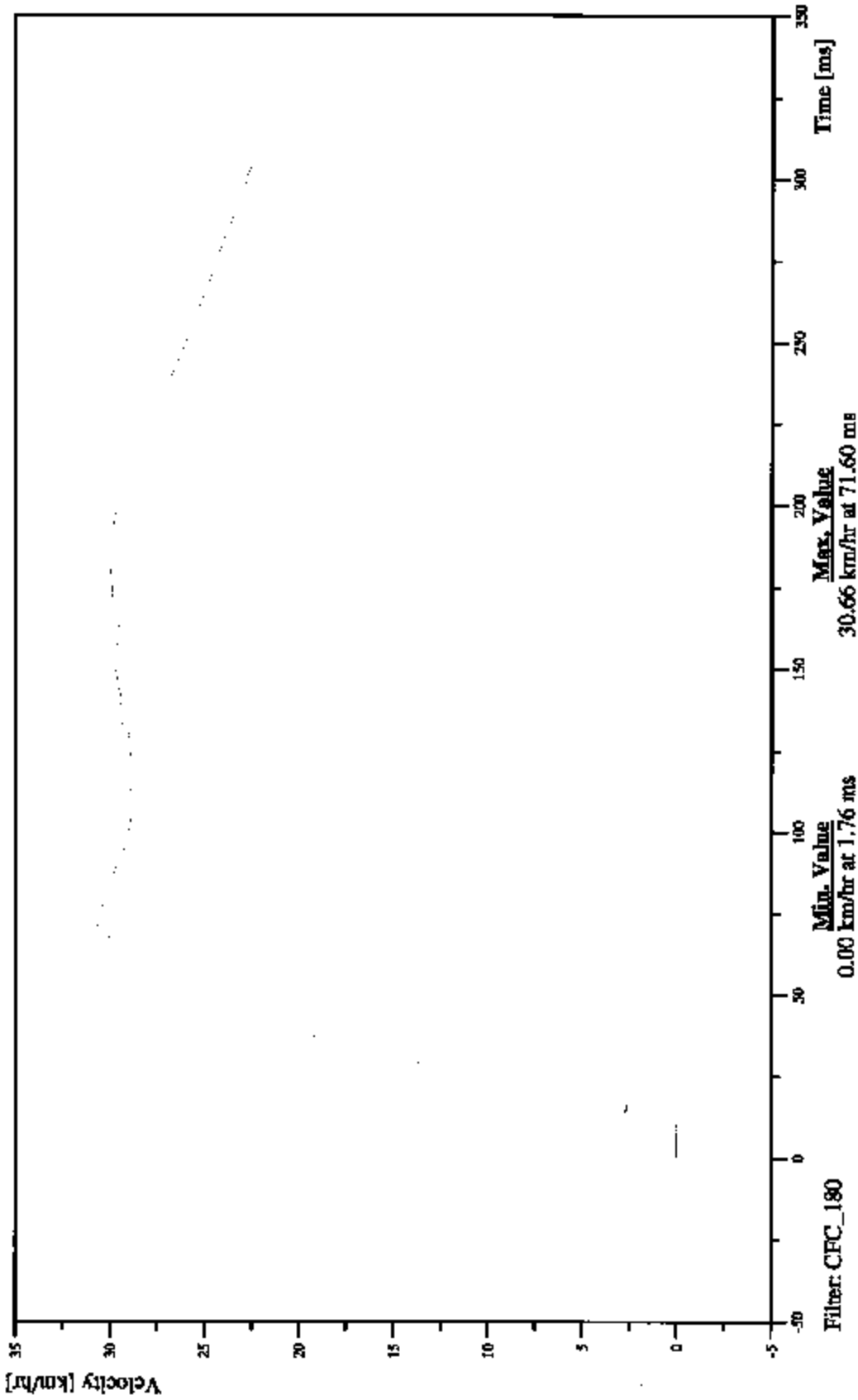


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 04/07/2005 11:50
DRIVER UPPER RIB (X) VELOCITY VS TIME REDUNDANT

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LURYVA



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Time: 11:01

DRIVER LOWER RIB (Y) ACCELERATION VS TIME REDUNDANT

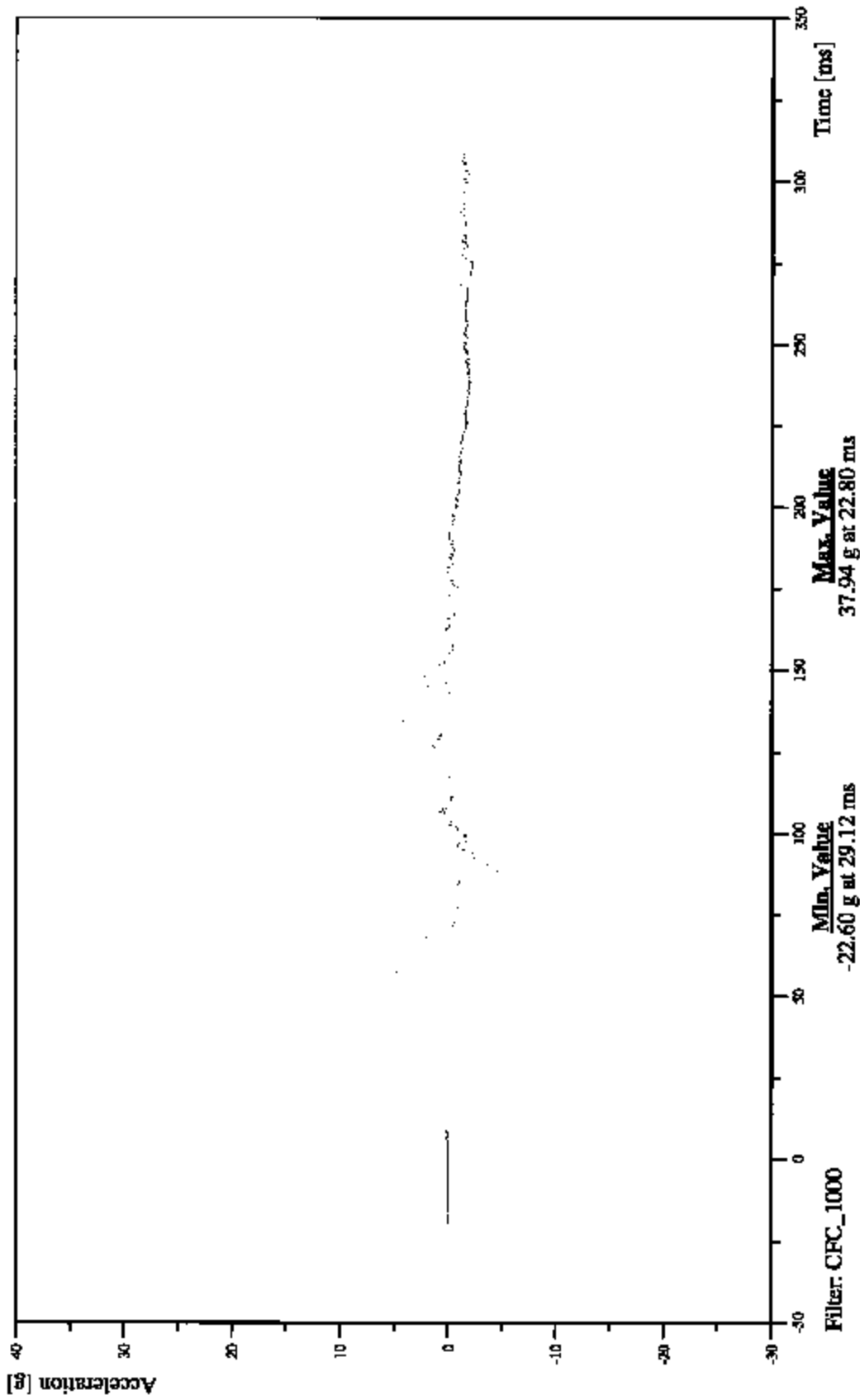
Customer: NHSTA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

LLRYR1

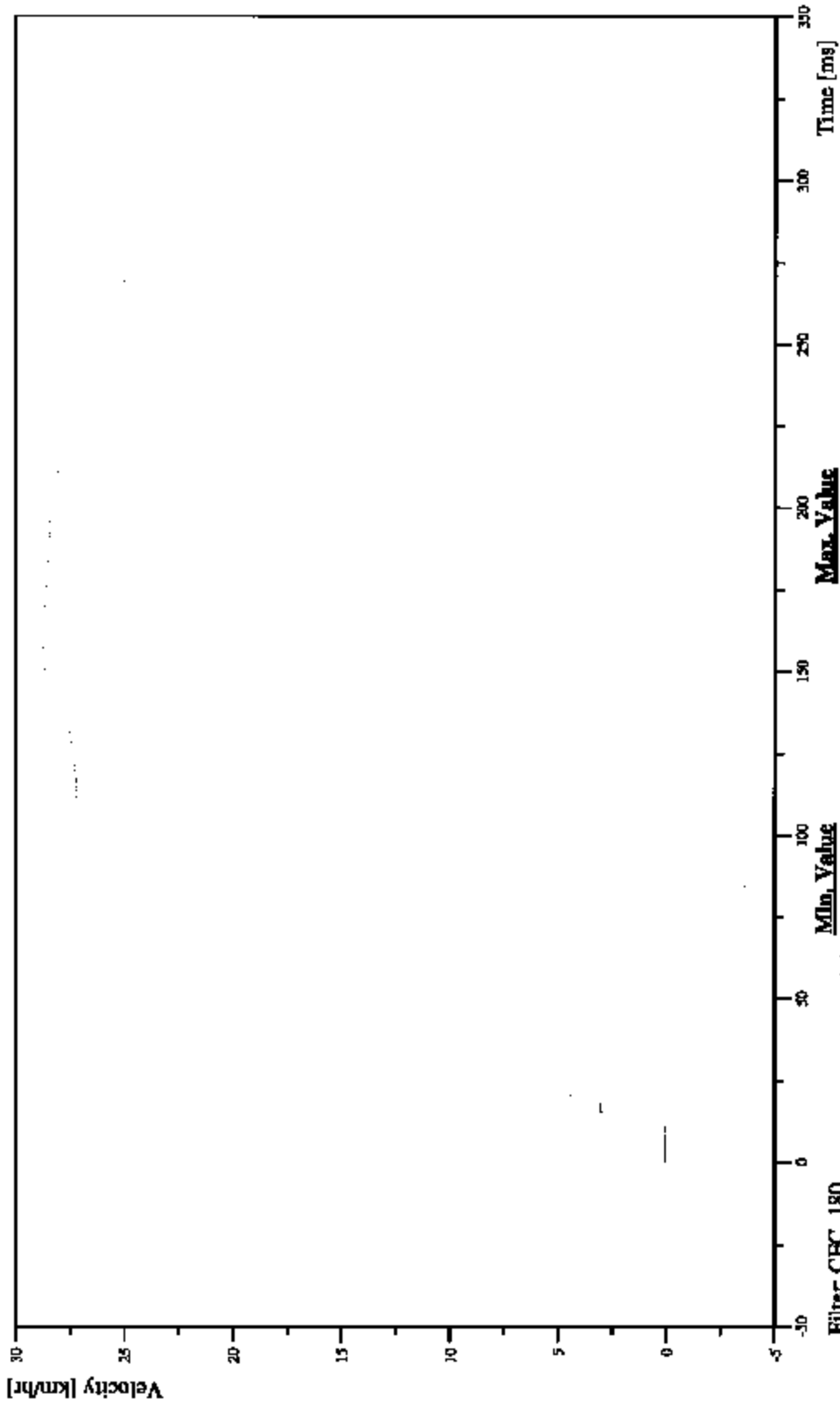


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
DRIVER LOWER RIB (C) VELOCITY VS TIME REDUNDANT

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LLRYVA

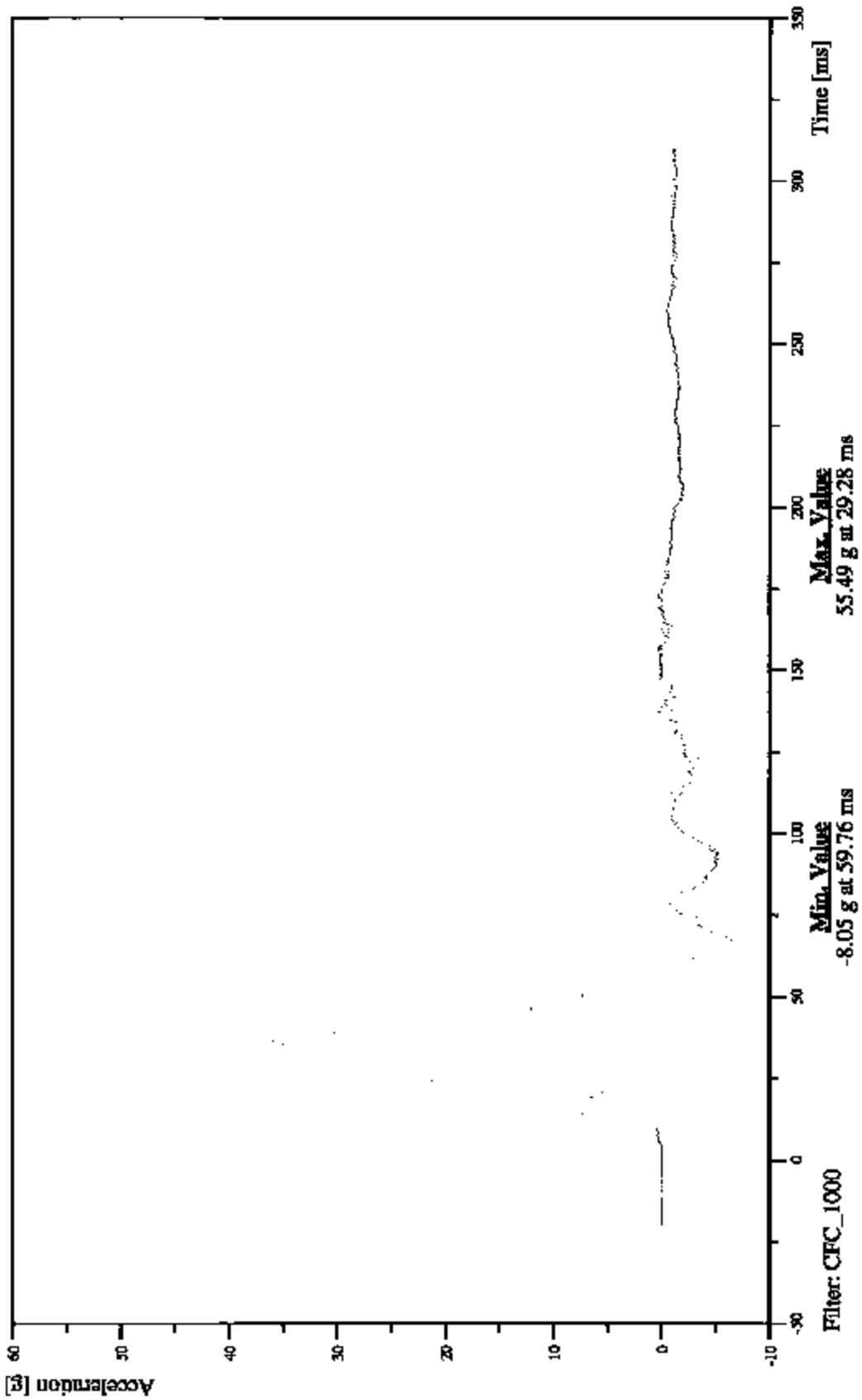


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
DRIVER LOWER SPINE (Y) ACCELERATION VS. TIME REDUNDANT

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

T12YR1

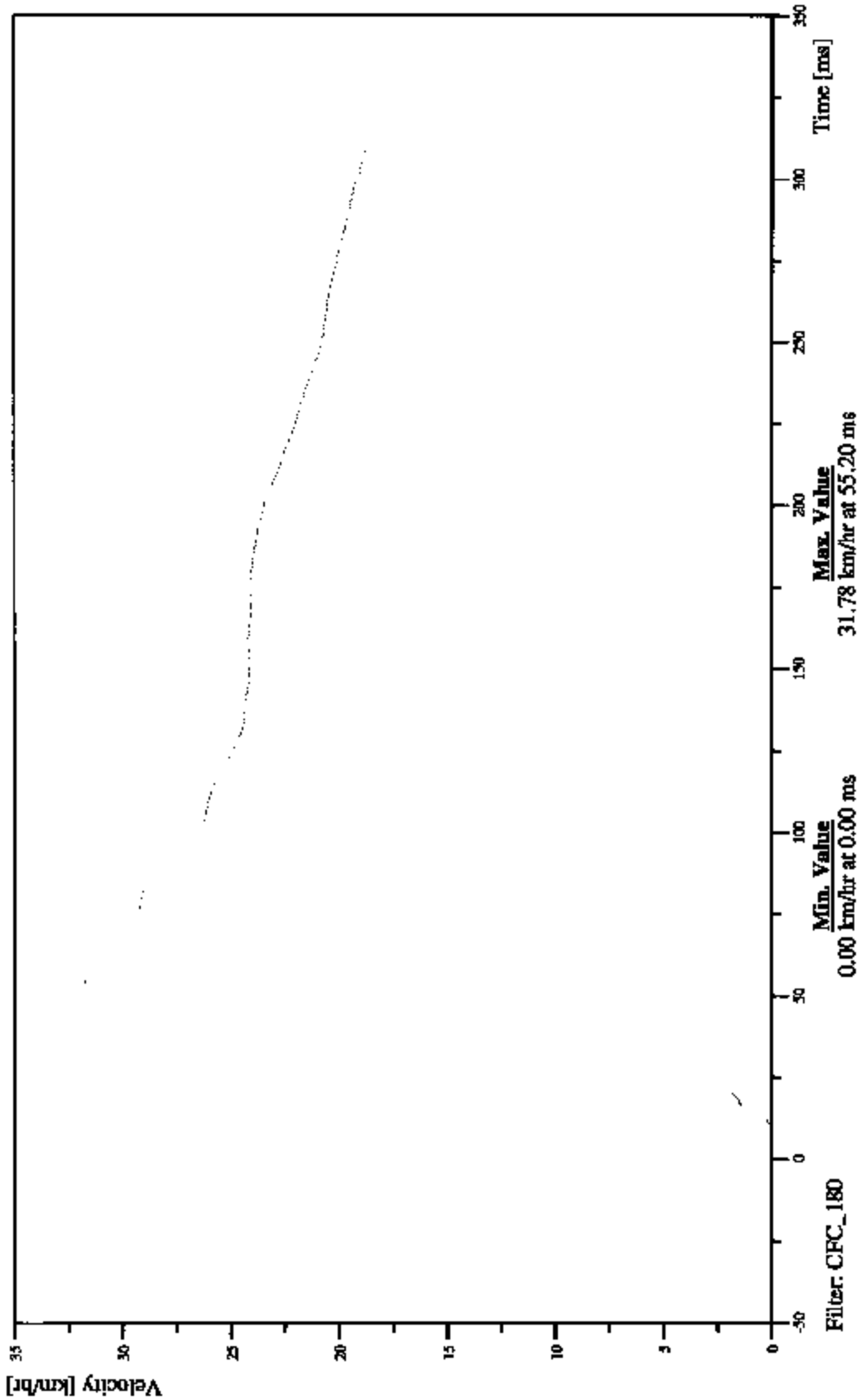


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 04/07/2005
DRIVER LOWER SPINE CO VELOCITY VS TIME REDUNDANT

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

T12YVA

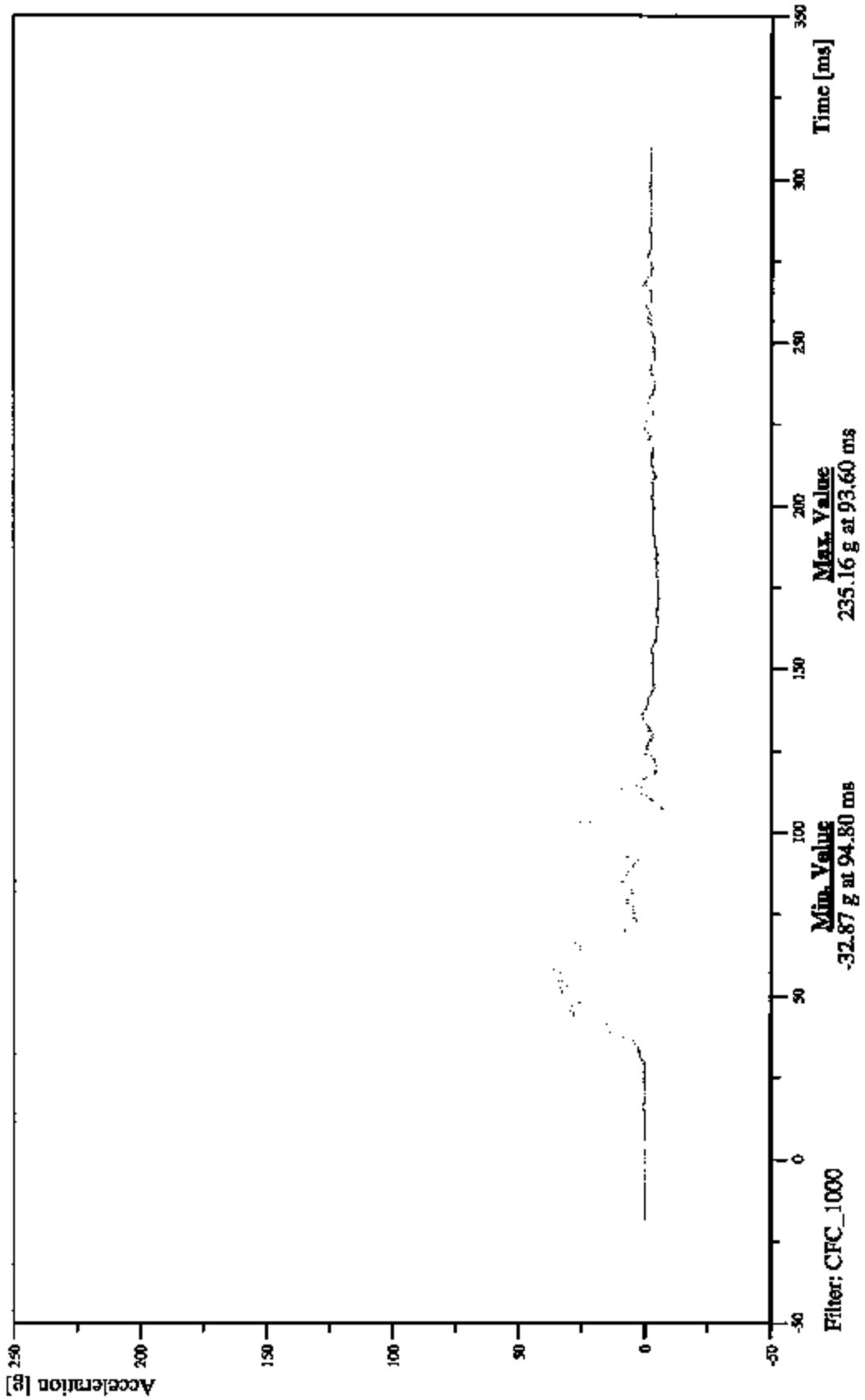


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
PASSENGER UPPER RIB CY ACCELERATION VS. TIME REDUNDANT

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LURYR4

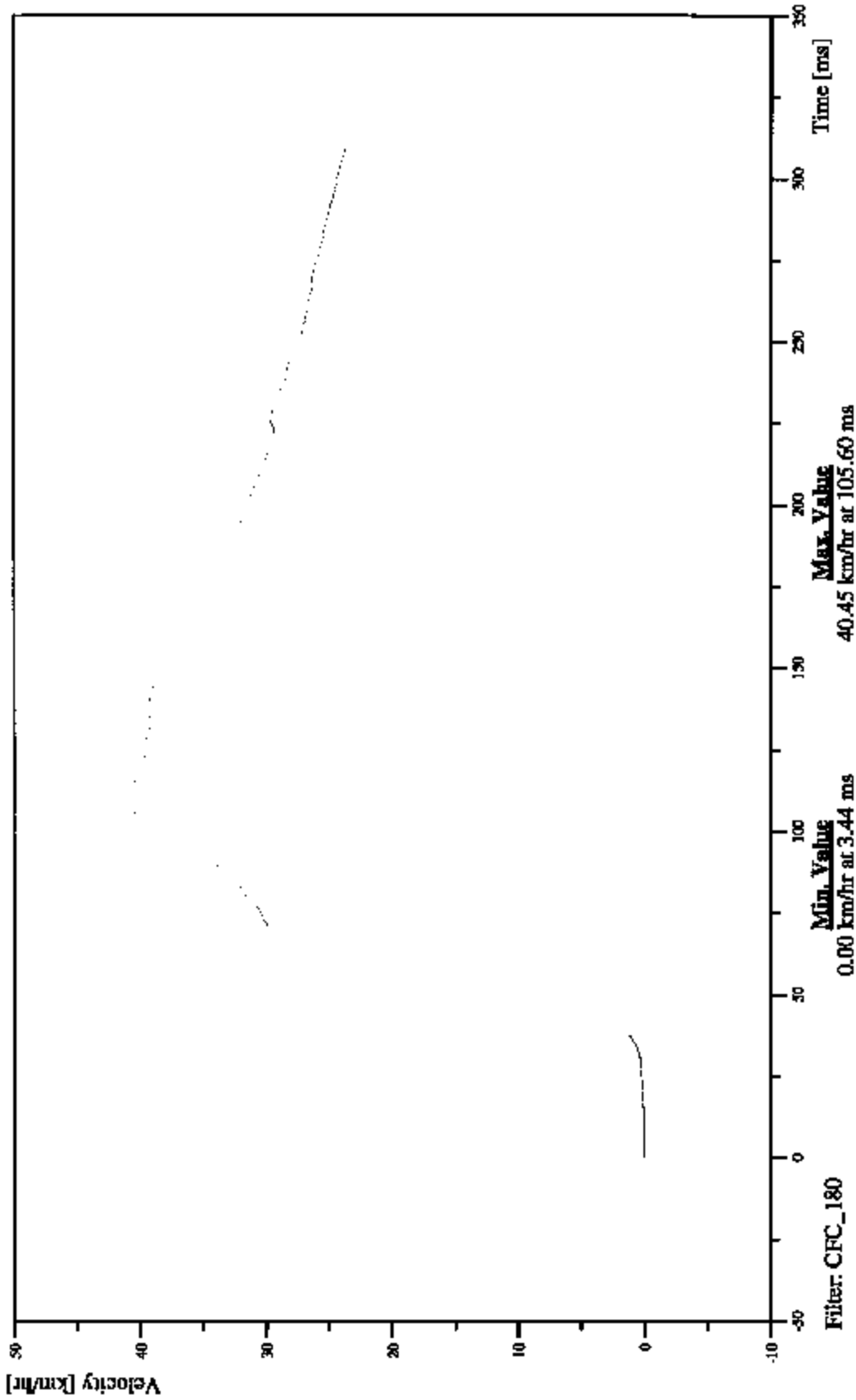


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
PASSENGER UPPER RIB (Y) VELOCITY VS. TIME REDUNDANT

Customer: NHSTA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LURYVB

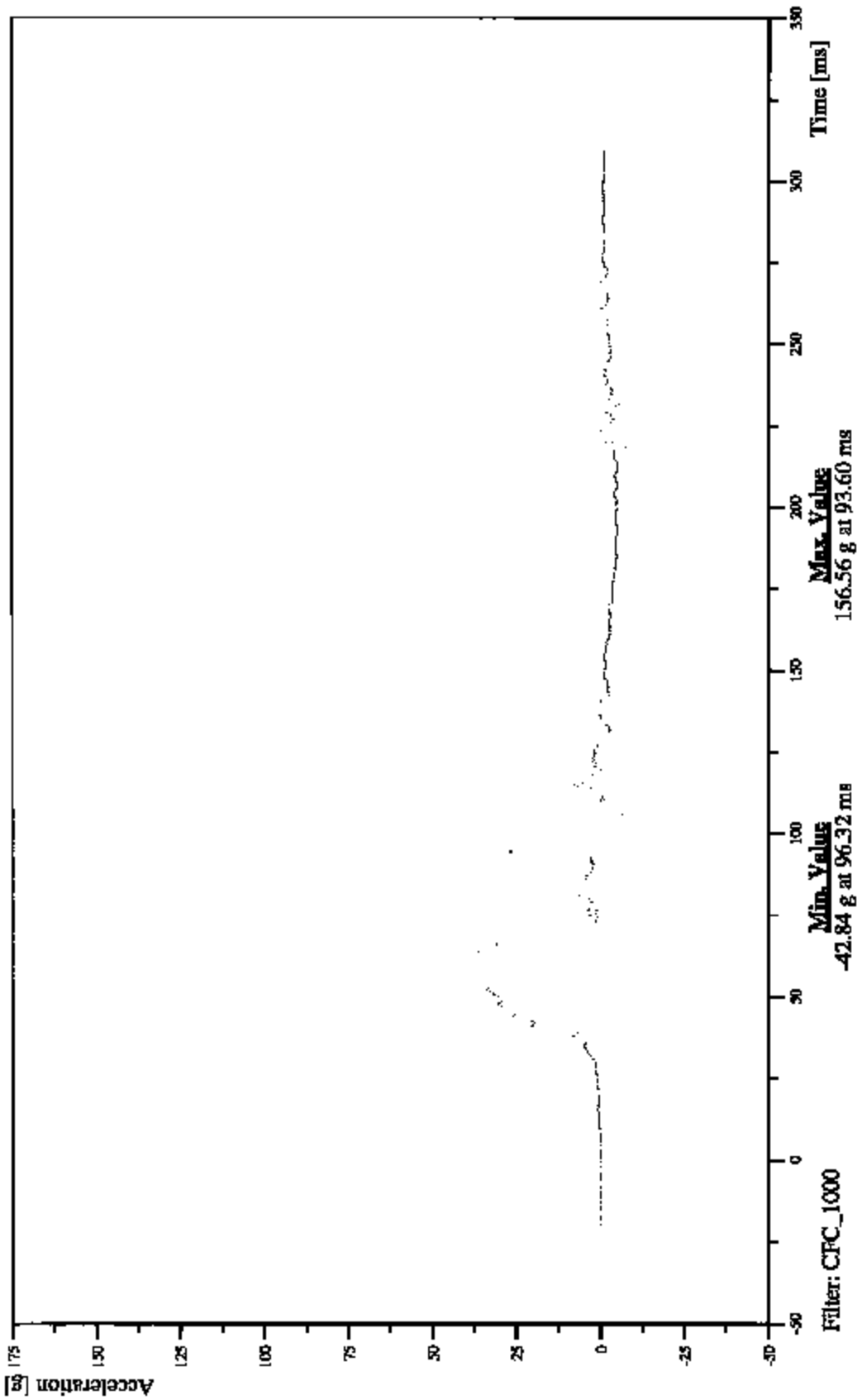


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
PASSENGER LOWER RIB (V) ACCELERATION VS TIME REDUNDANT

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LLRYR4



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Time: 11:01

PASSENGER LOWER RIB (C) VELOCITY VS TIME REDUNDANT

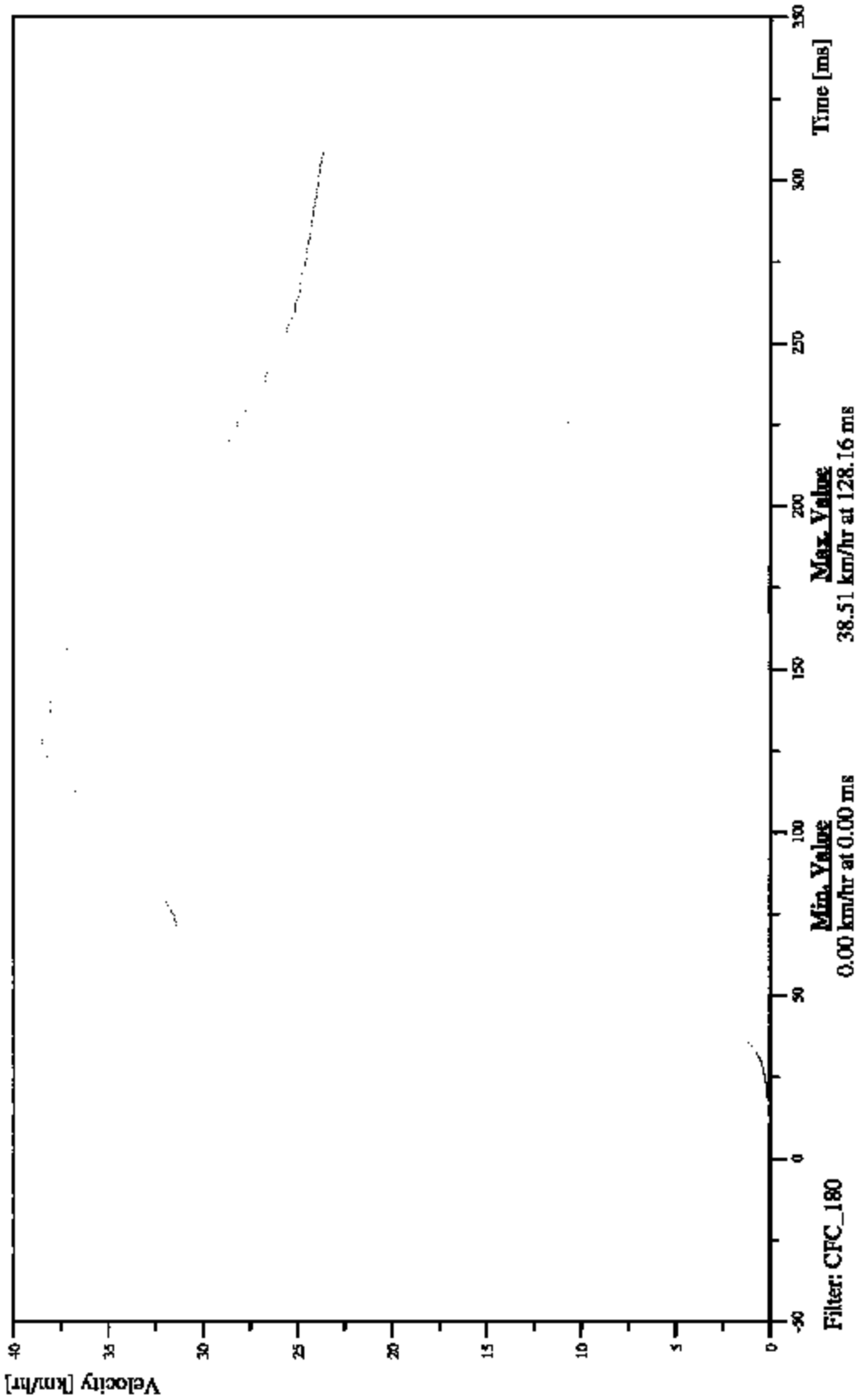
Customer: NHTSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

LLRYVB



Max. Value
38.51 km/hr at 128.16 ms

Min. Value
0.00 km/hr at 0.00 ms

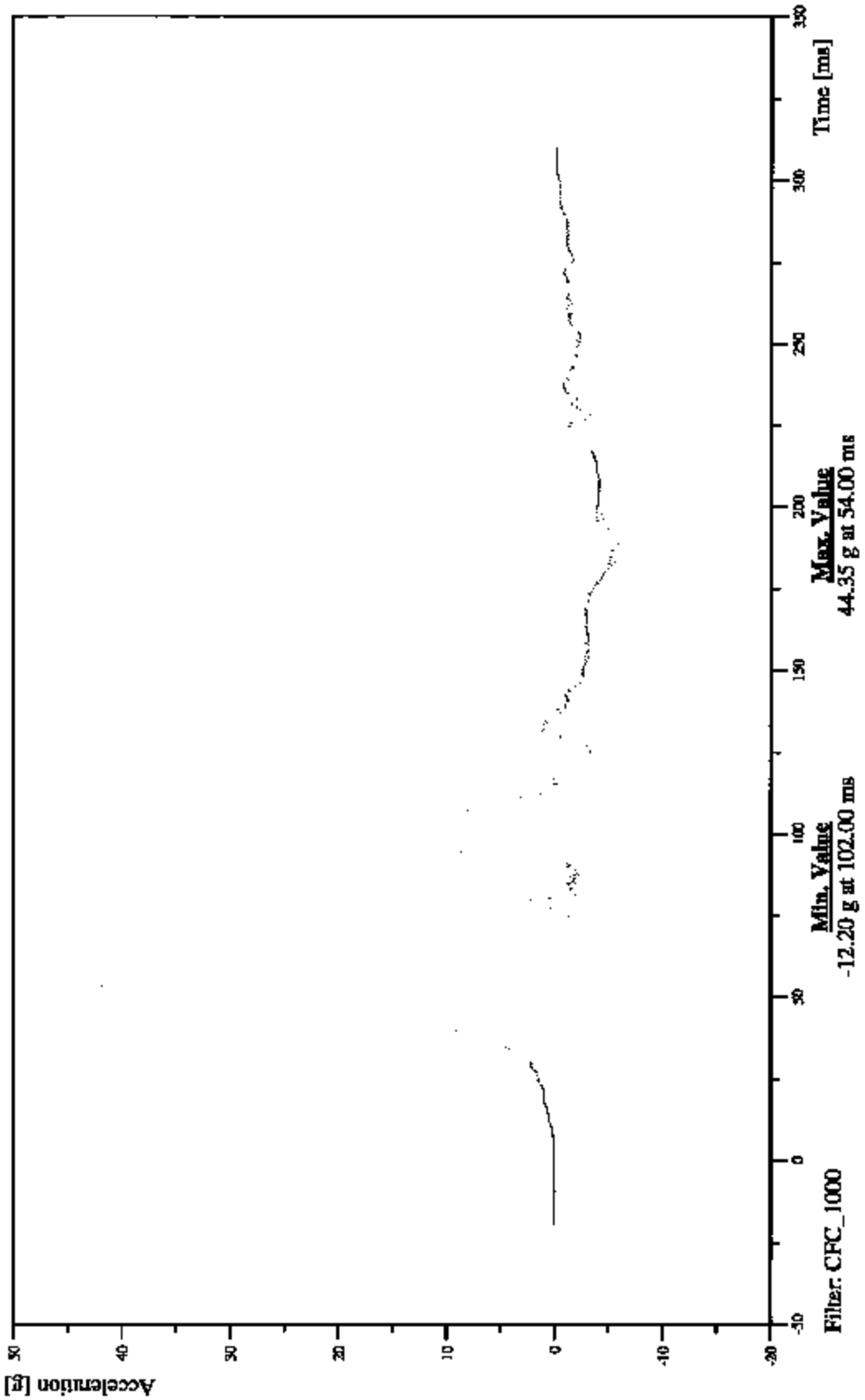
Filter: CFC_180

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME REDUNDANT

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

T12YR4



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

01/07/2005
Time: 11:01

PASSENGER LOWER SPINE CO VELOCITY VS TIME REDUNDANT

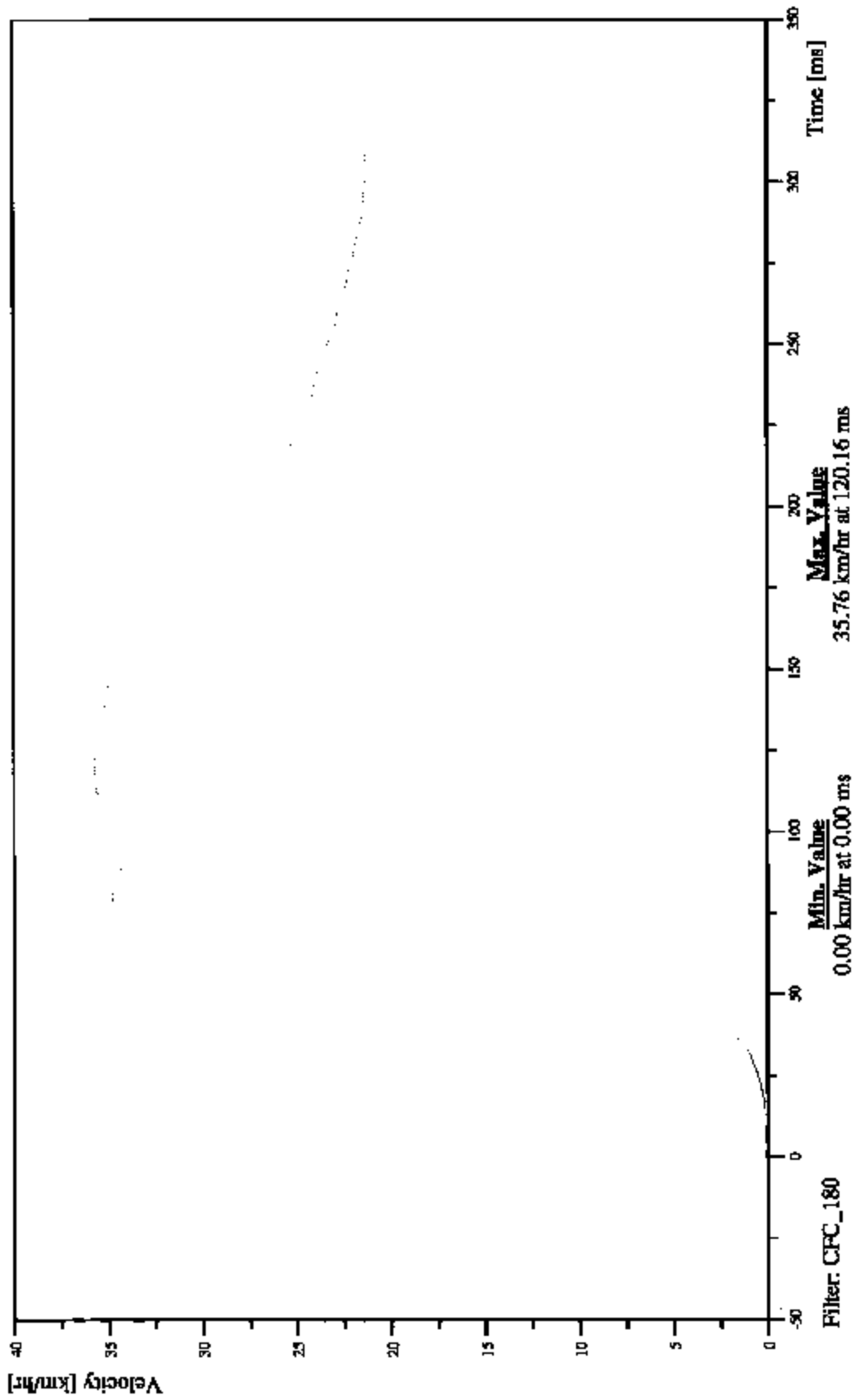
Customer: NHTSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

T12YVB

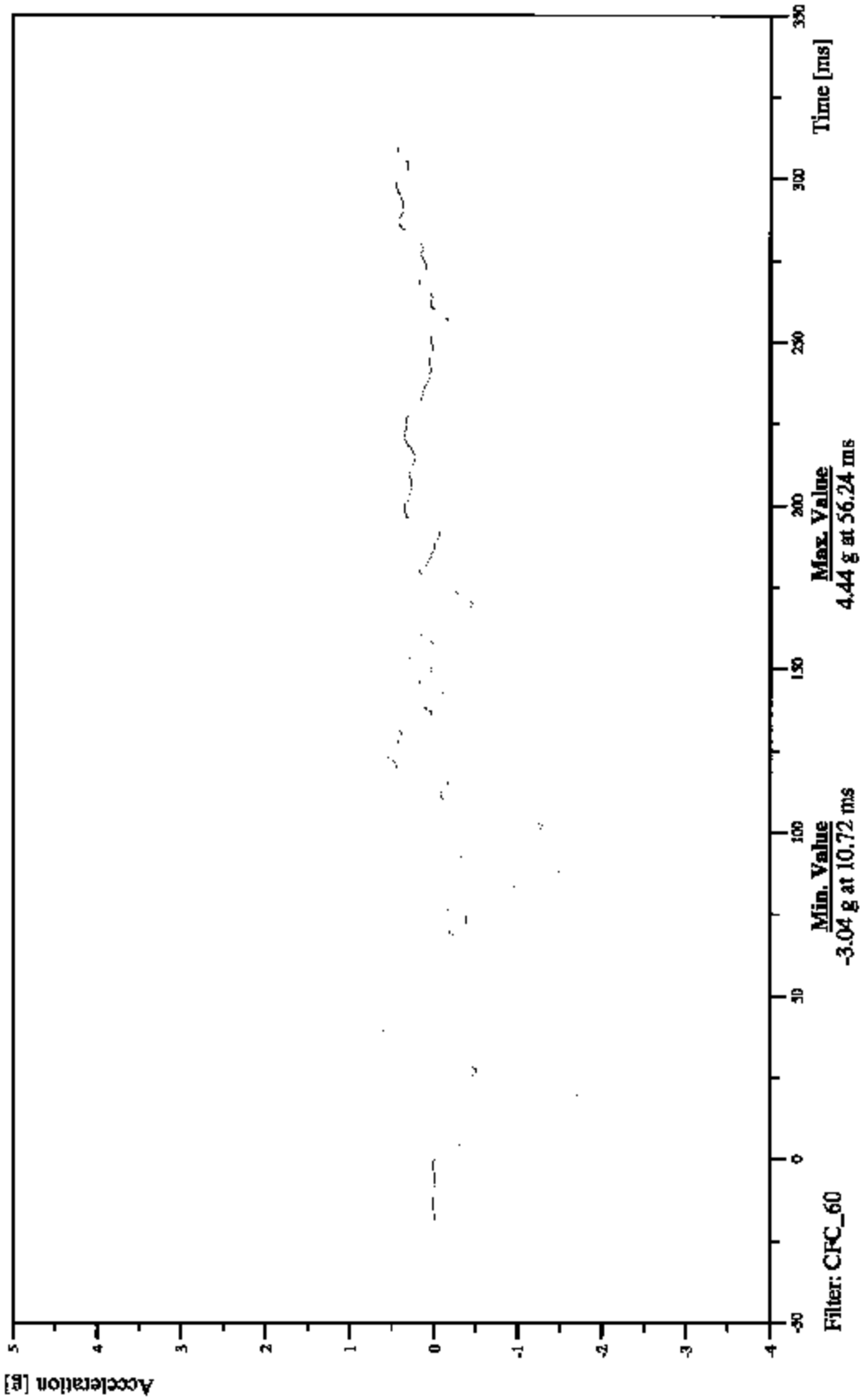


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
RIGHT SIDE SILL AT FRONT SEAT (X) ACCELERATION VS TIME (#1)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

RFSXG1



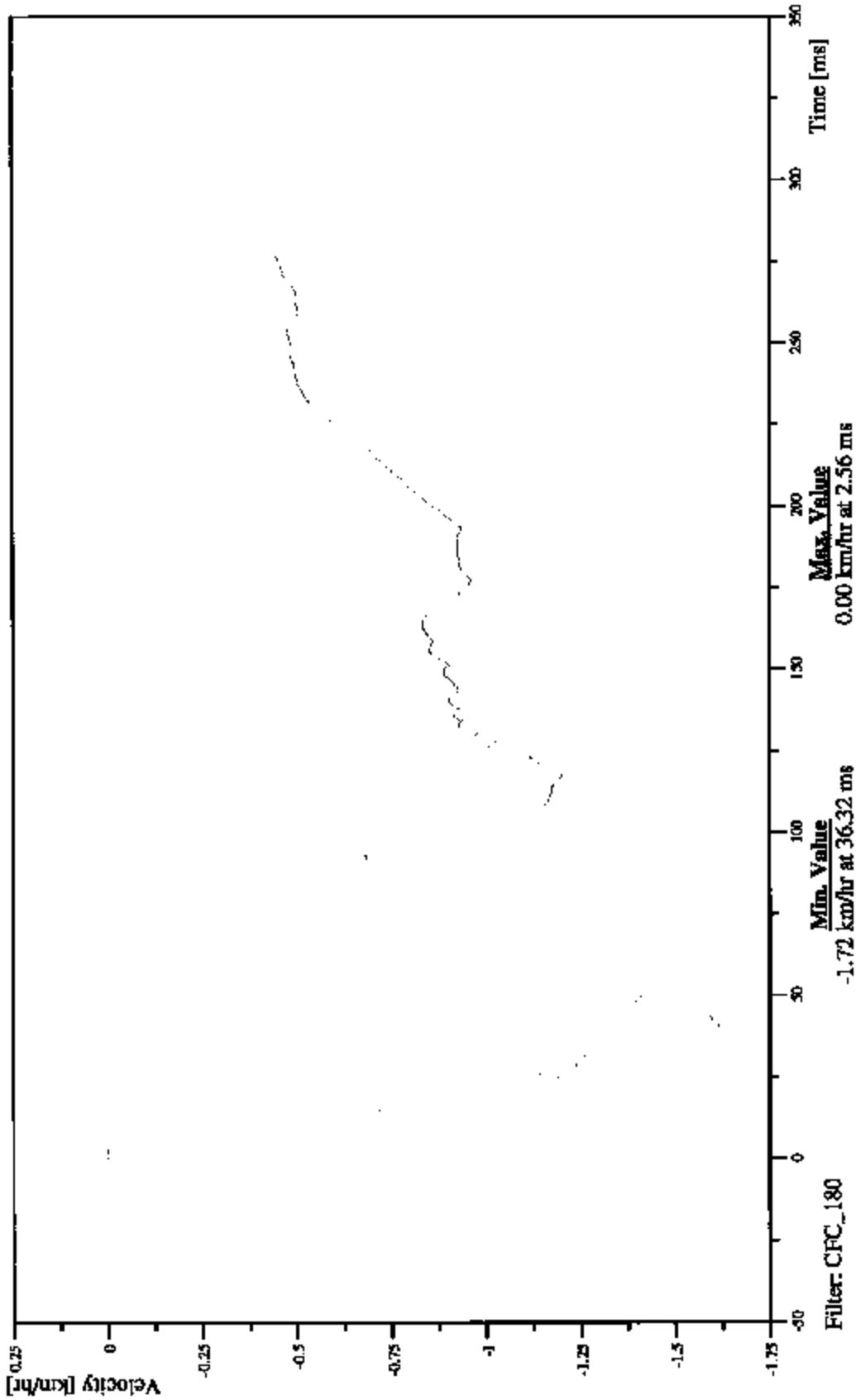
48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01

RIGHT SIDE SILL AT FRONT SEAT (X) VELOCITY VS TIME (#1)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

RFSXV1



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Time: 1:30

RIGHT SIDE SILL AT FRONT SEAT OCC ACCELERATION VS TIME (#1)

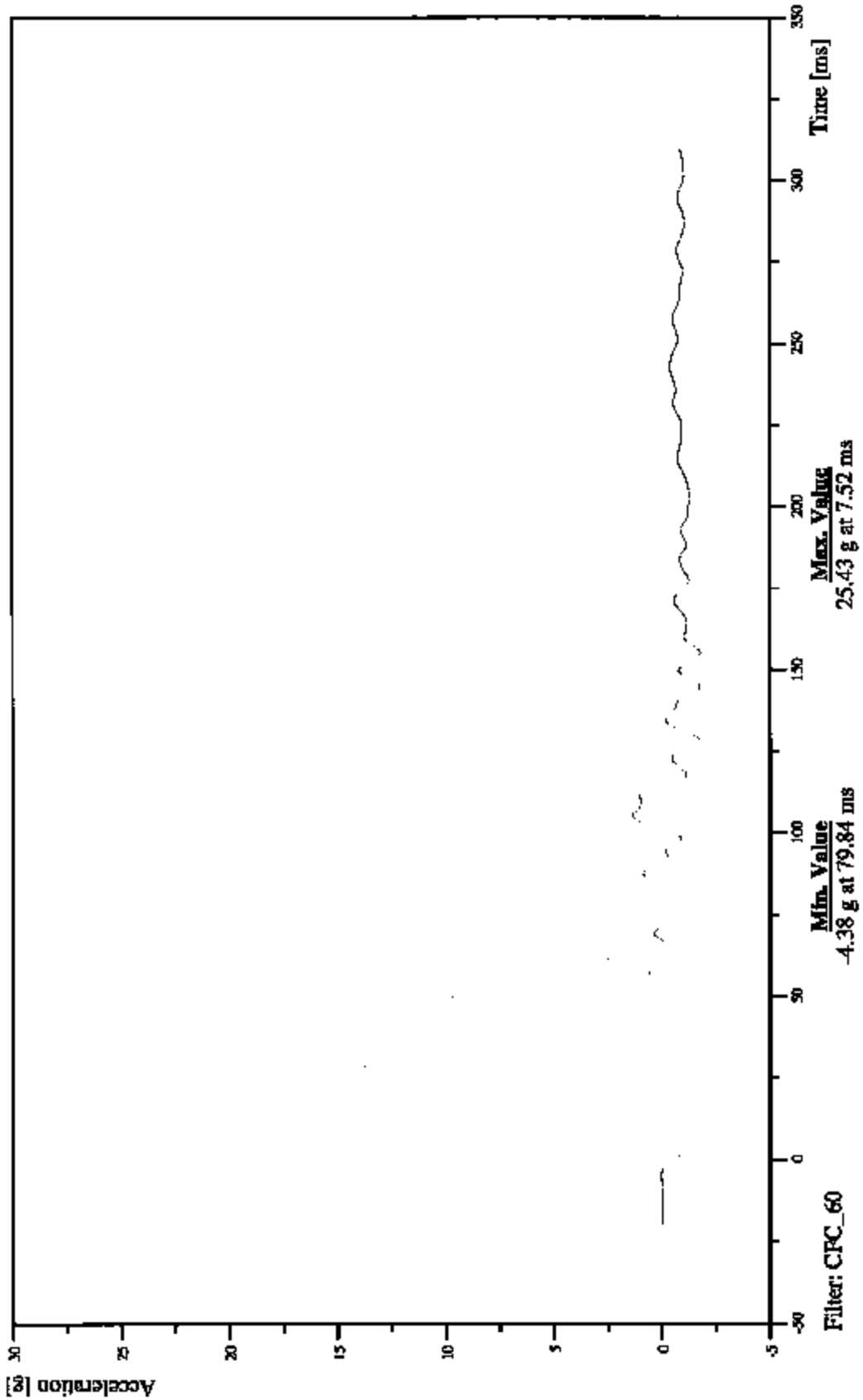
Customer: NHTSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

RFSYG1



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Time: 11:01

RIGHT SIDE SILL AT FRONT SEAT OCC VELOCITY VS TIME (#1)

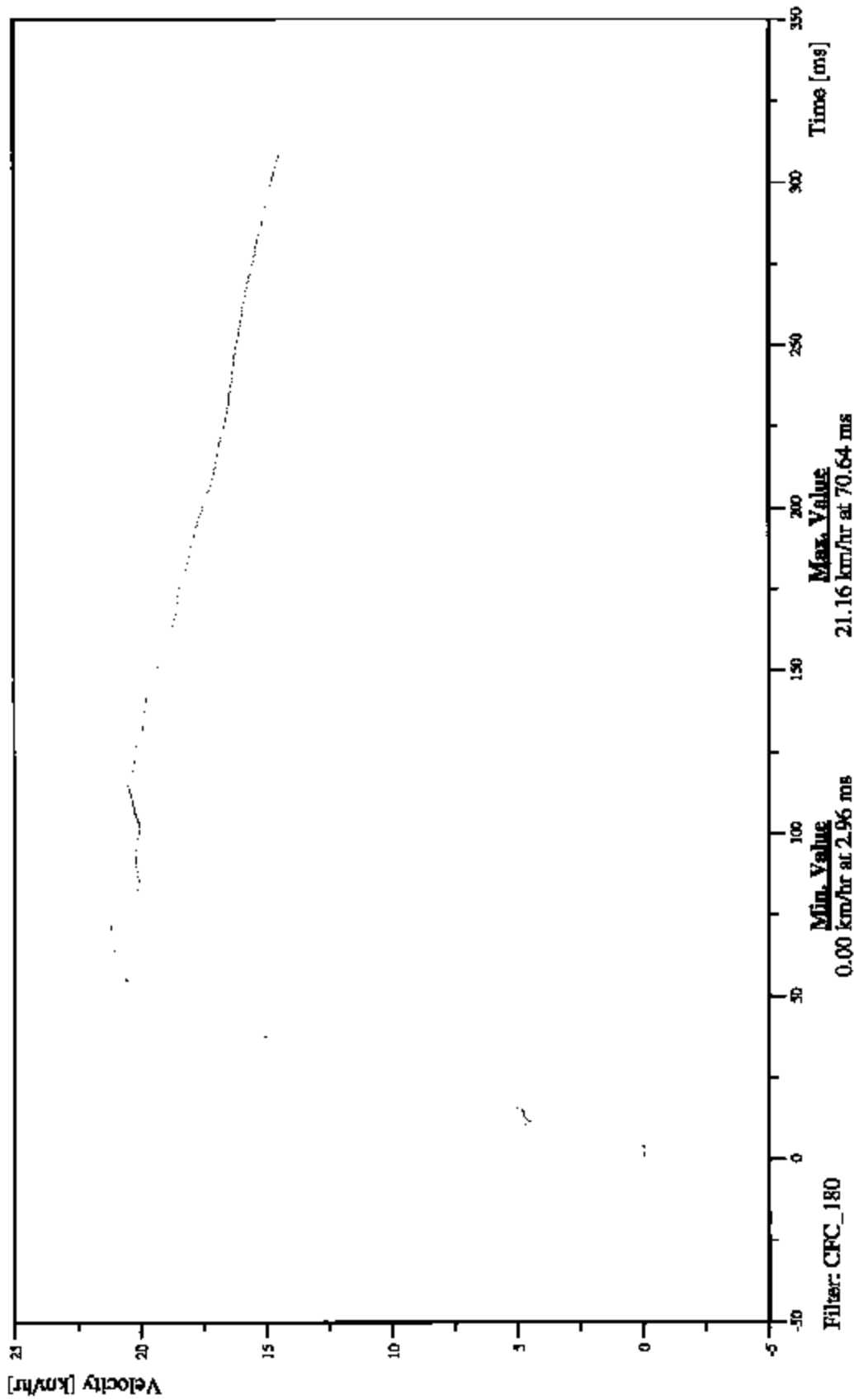
Customer: NHTSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

RFSYV1

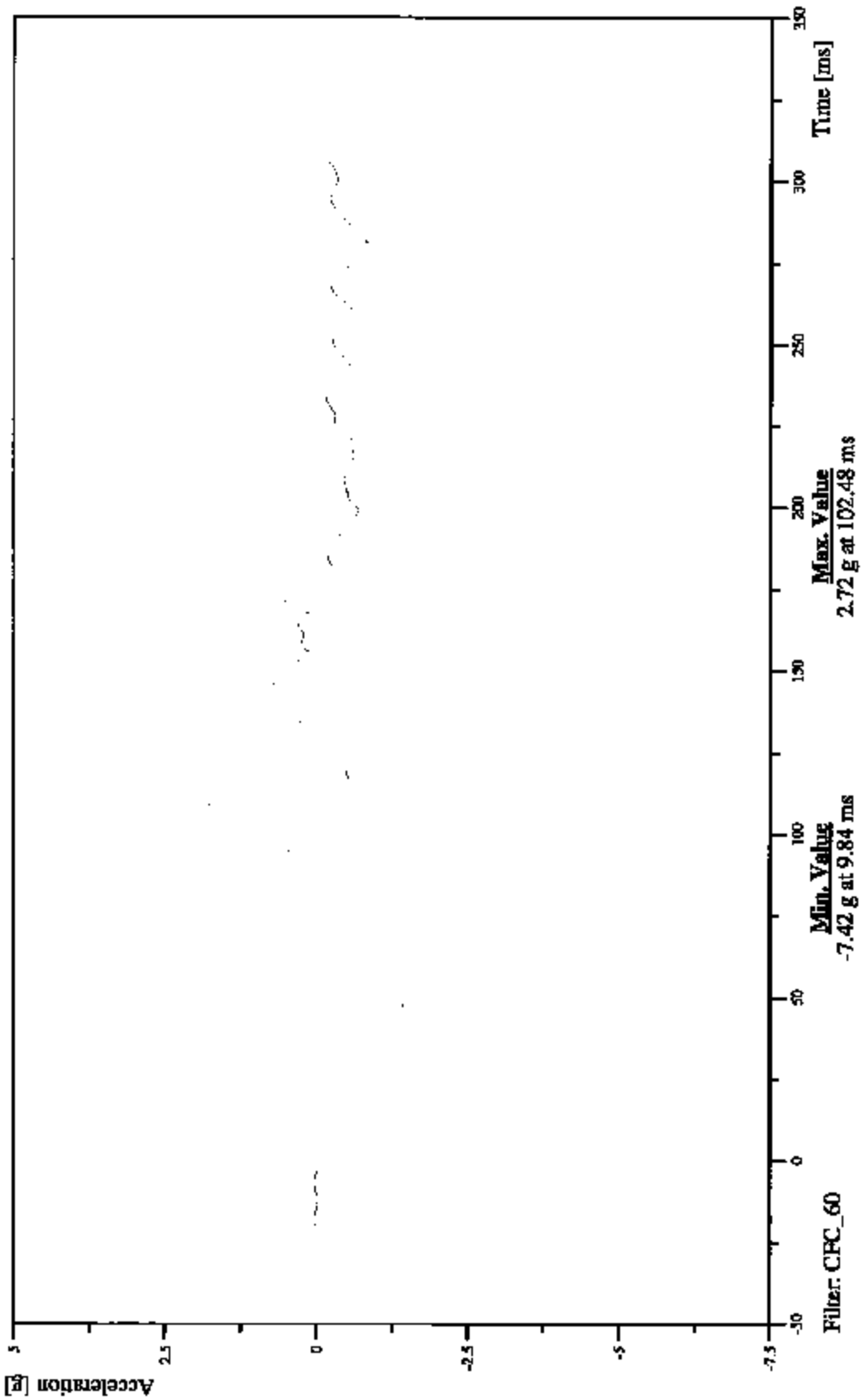


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
RIGHT SIDE SILL AT FRONT SEAT (Z) ACCELERATION VS TIME (#1)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

RFSZG1



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Time: 04/07/2005

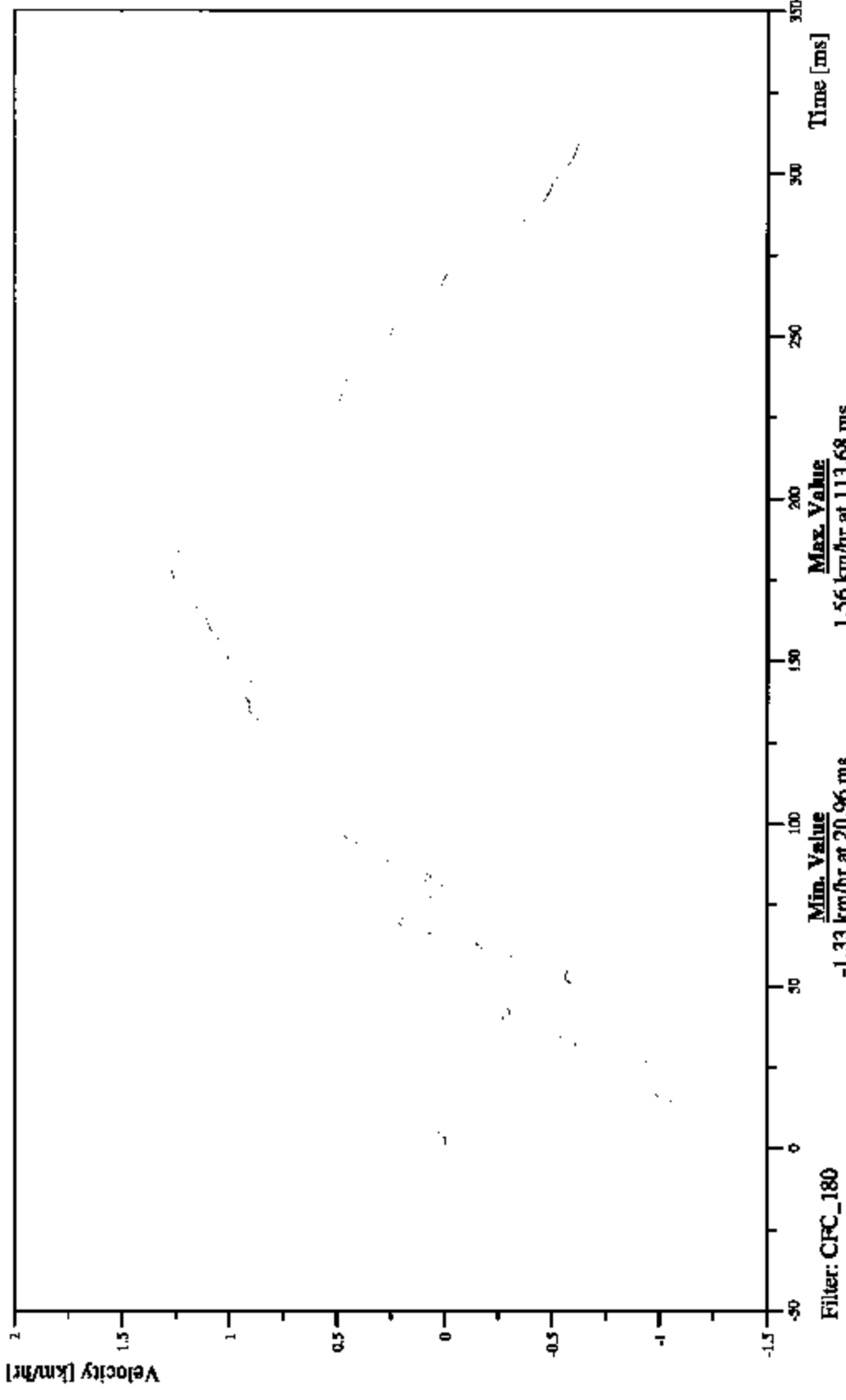
RIGHT SIDE SILL AT FRONT SEAT (Z) VELOCITY VS TIME (#1)

Time: 01:50

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

RFSZV1

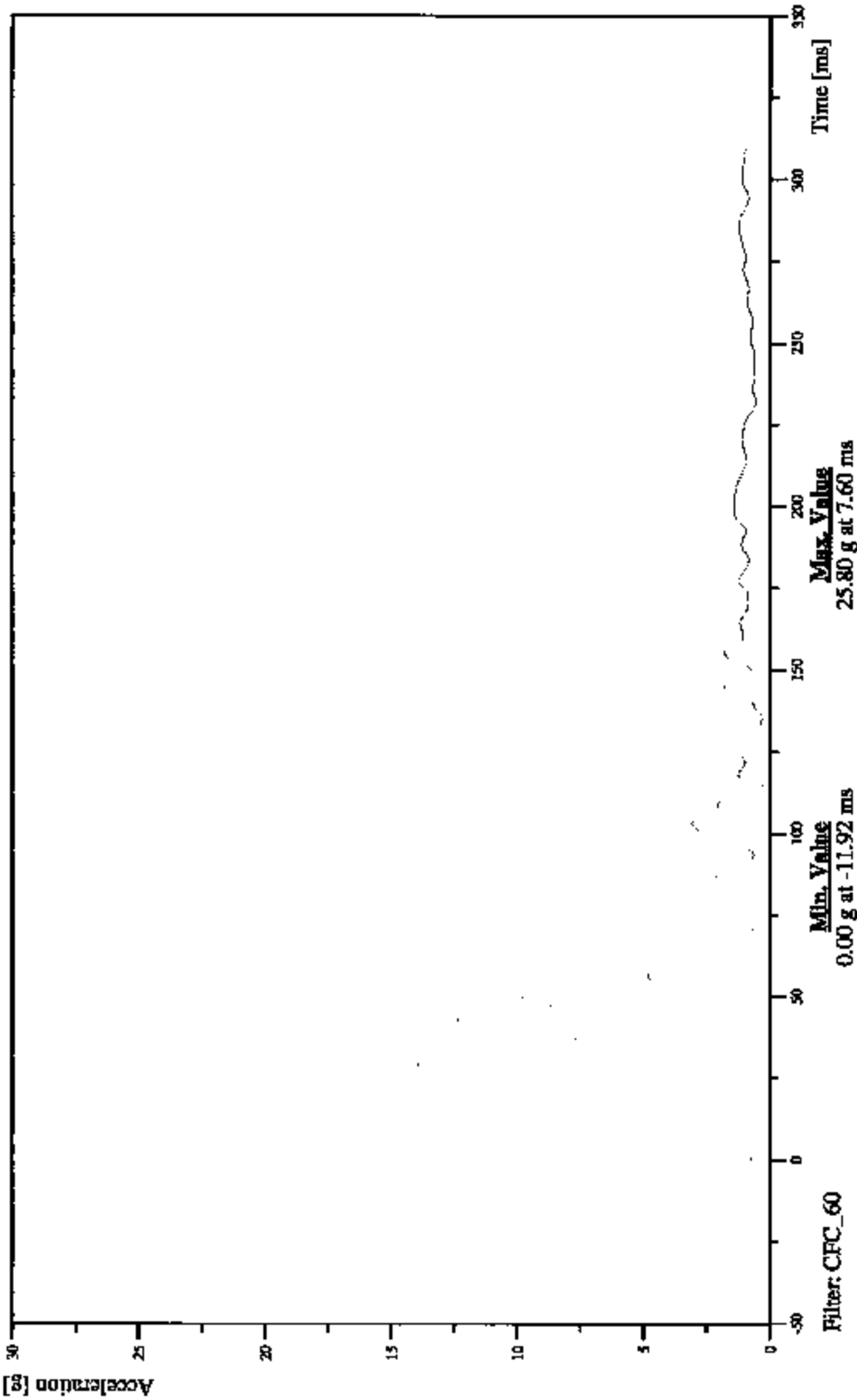


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 04/07/2005
RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION VS TIME (#1)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

RF SRG1



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

04072005

Time: 11:01

RIGHT SIDE SILL AT REAR SEAT (X) ACCELERATION VS TIME (#2)

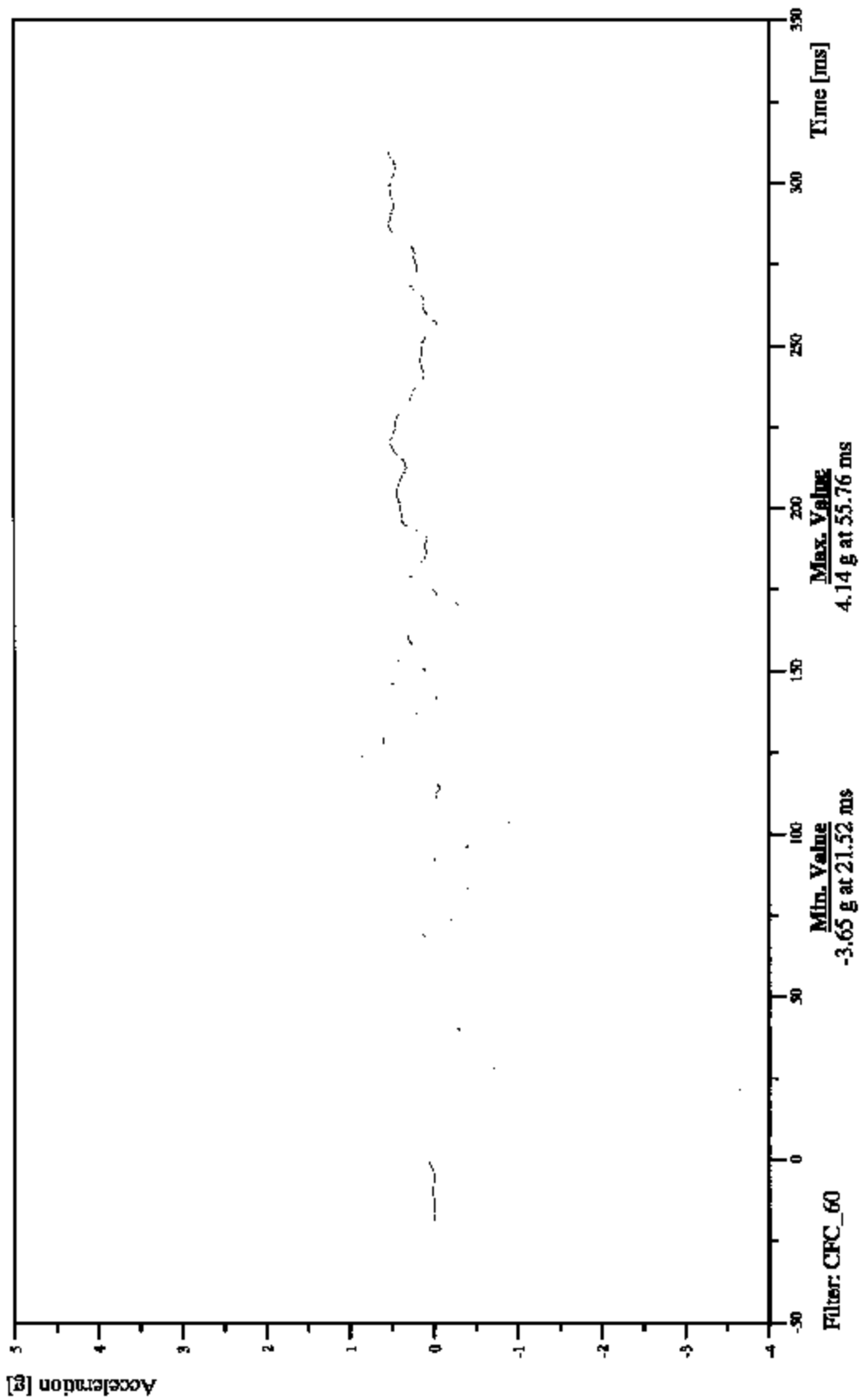
Customer: NHTSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

RRSXG1

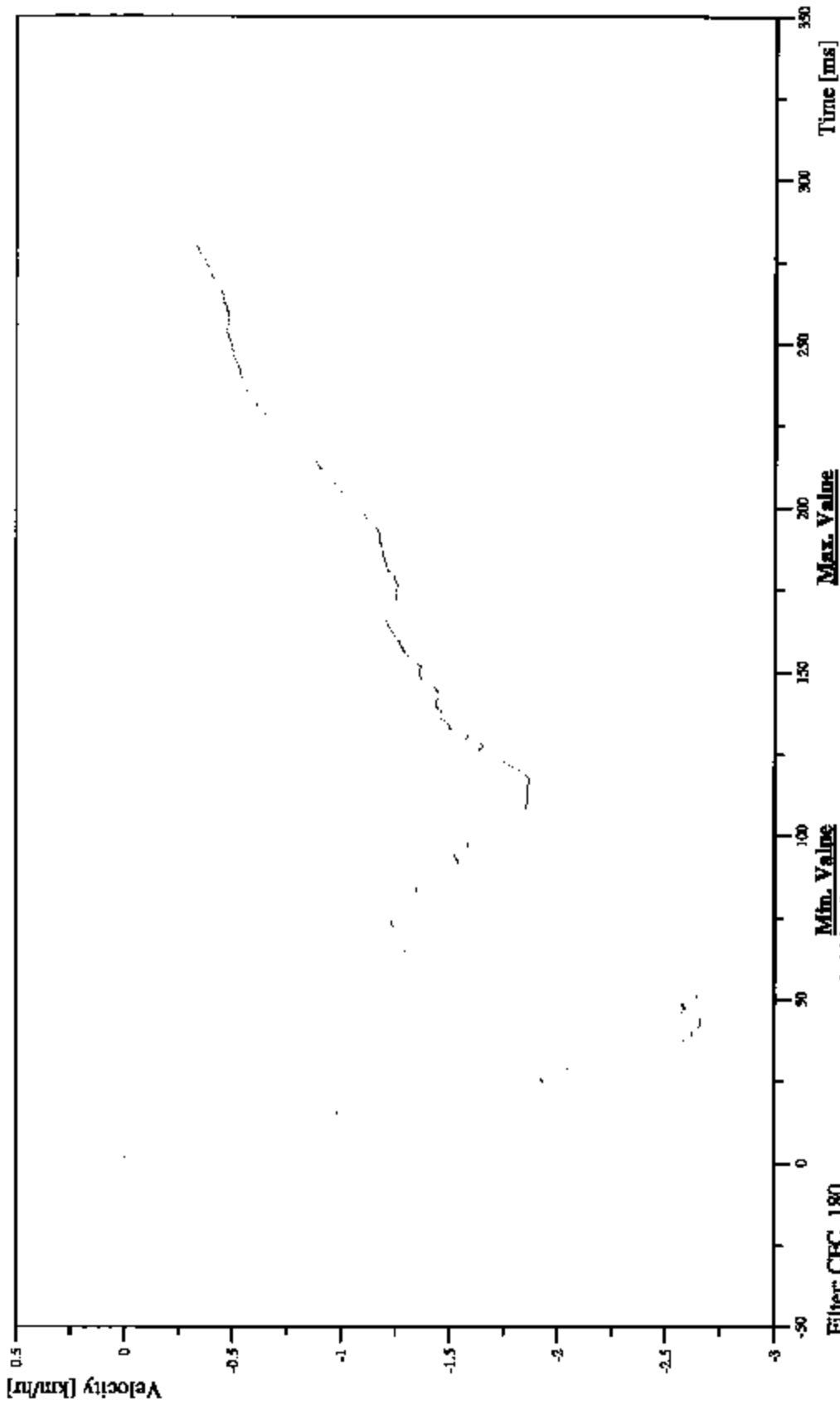


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 04/07/2005
Time: 11:01
RIGHT SIDE SILL AT REAR SEAT (X) VELOCITY VS TIME (#2)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

RRSXV1

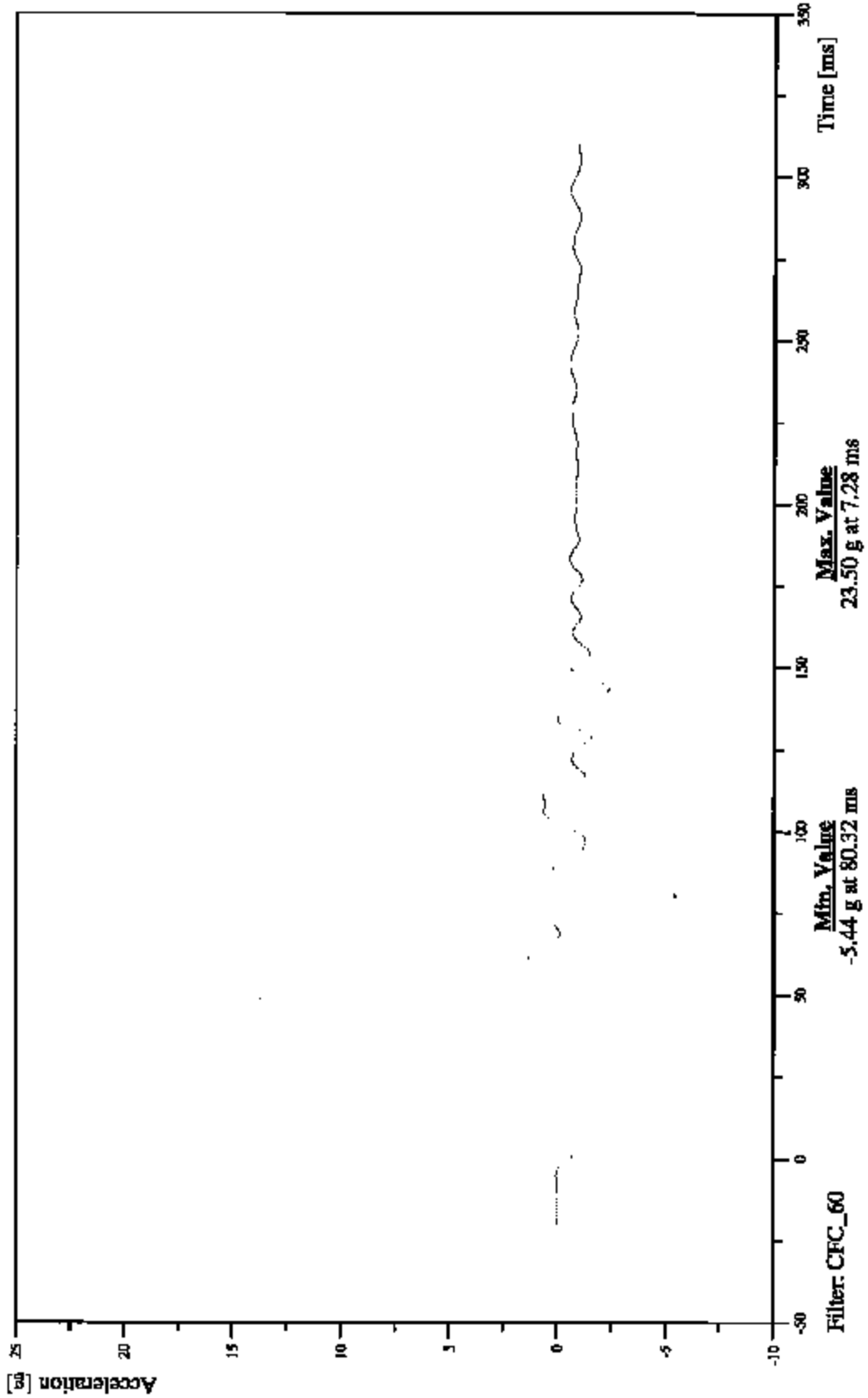


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Date: 04/07/2006
Time: 11:01
RIGHT SIDE SILL AT REAR SEAT (X) ACCELERATION VS TIME (#2)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

RRSYG1



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Time: 11:01

RIGHT SIDE SILL AT REAR SEAT (C) VELOCITY VS TIME (#2)

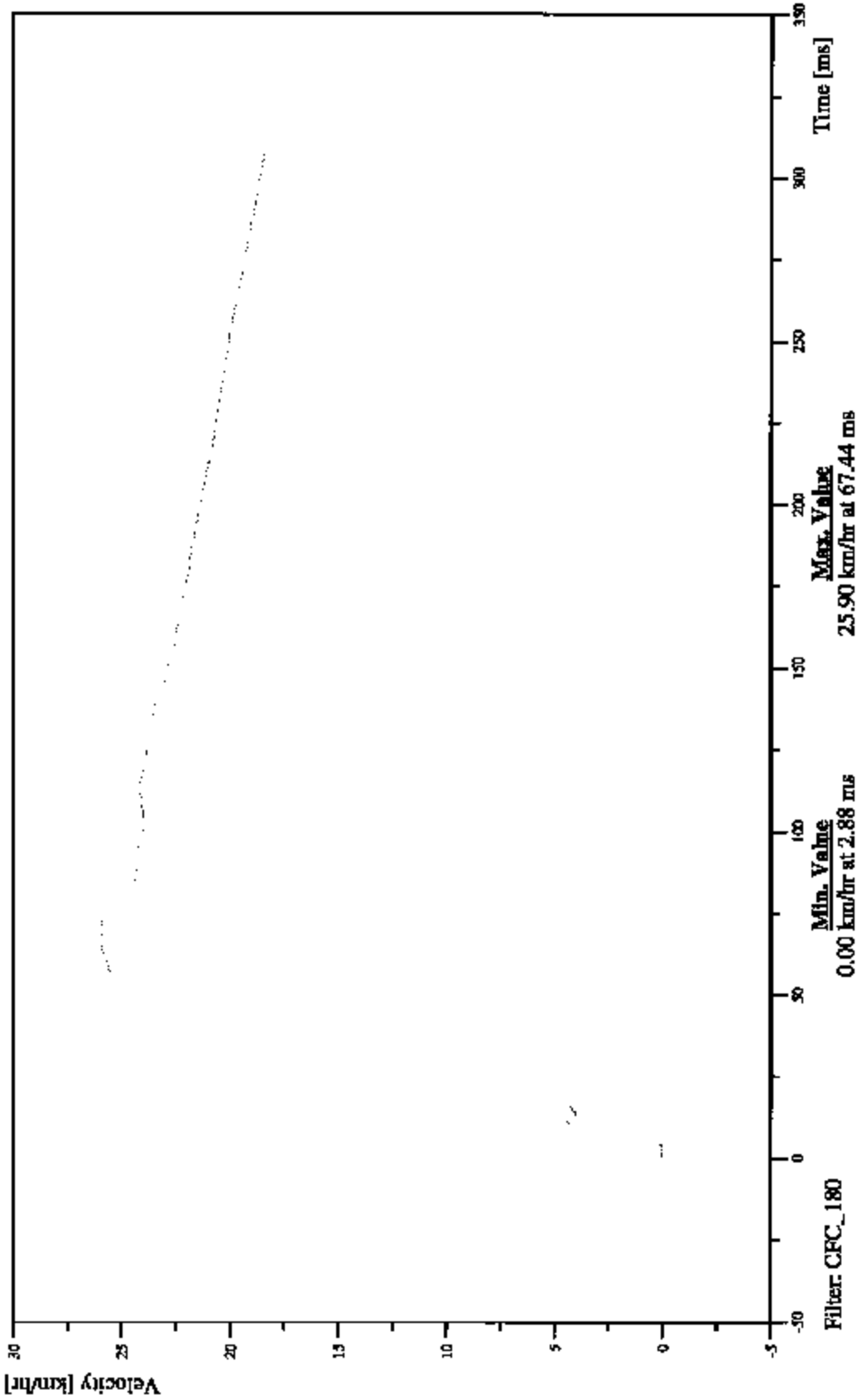
Customer: NHTSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

RRSYV1

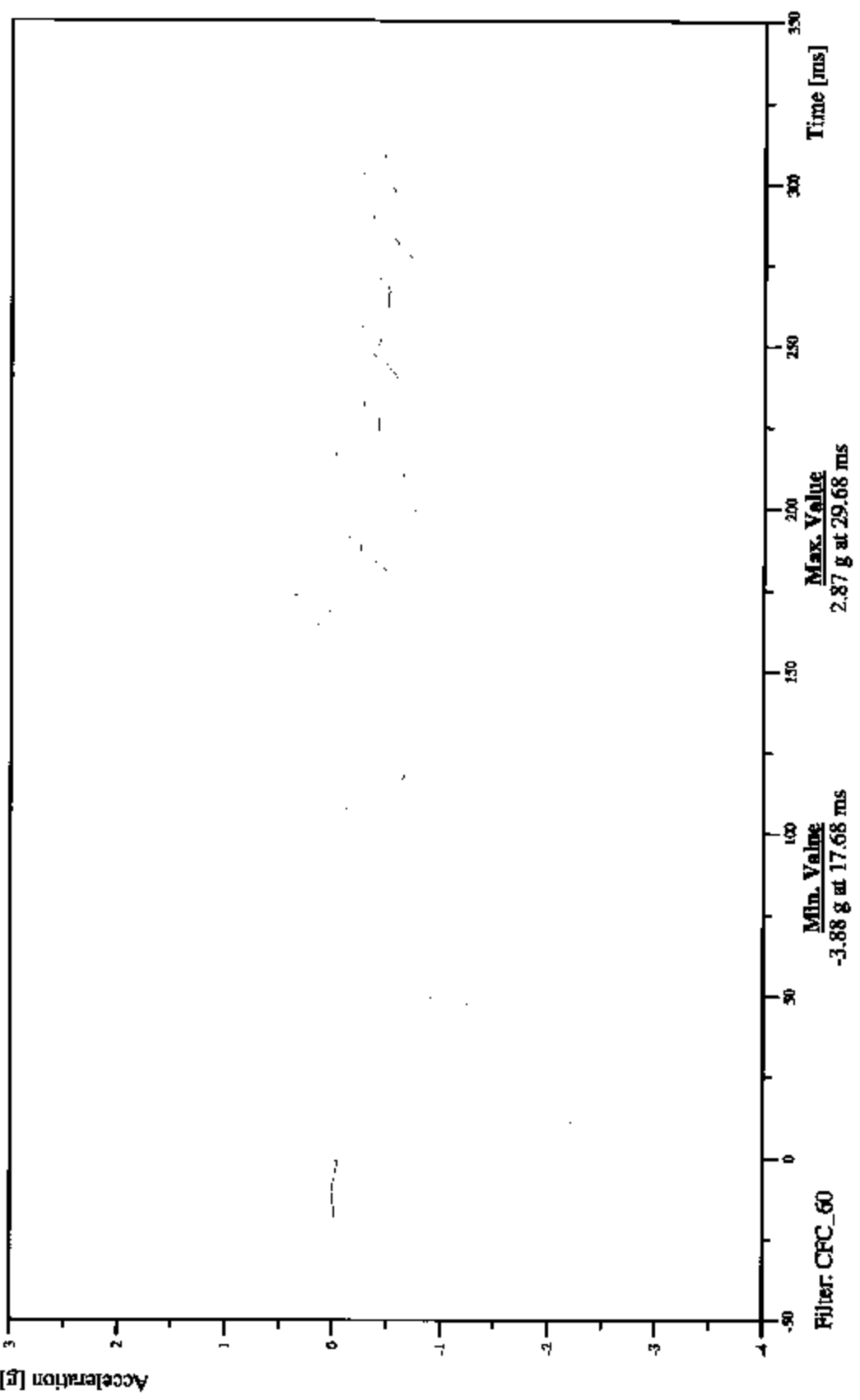


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 04/07/2005
RIGHT SIDE SILL AT REAR SEAT (Z) ACCELERATION VS TIME (#2)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

RRSZG1



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

04/07/2005

Time: 11:01

RIGHT SIDE SILL AT REAR SEAT (Z) VELOCITY VS TIME (#2)

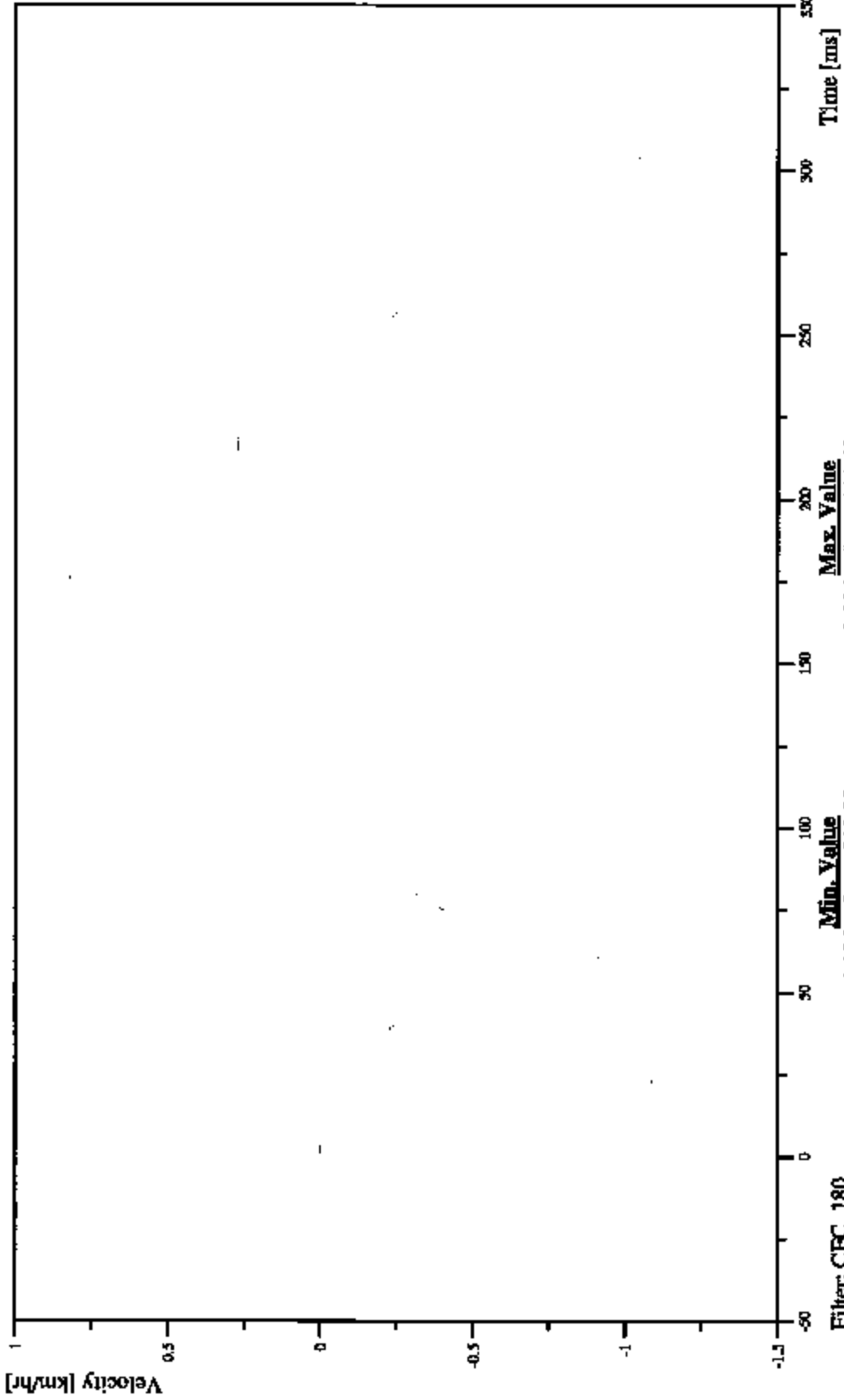
Customer: NH TSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

RRSYV1



Filter: CFC_180

Min. Value
-1.13 km/hr at 310.00 ms

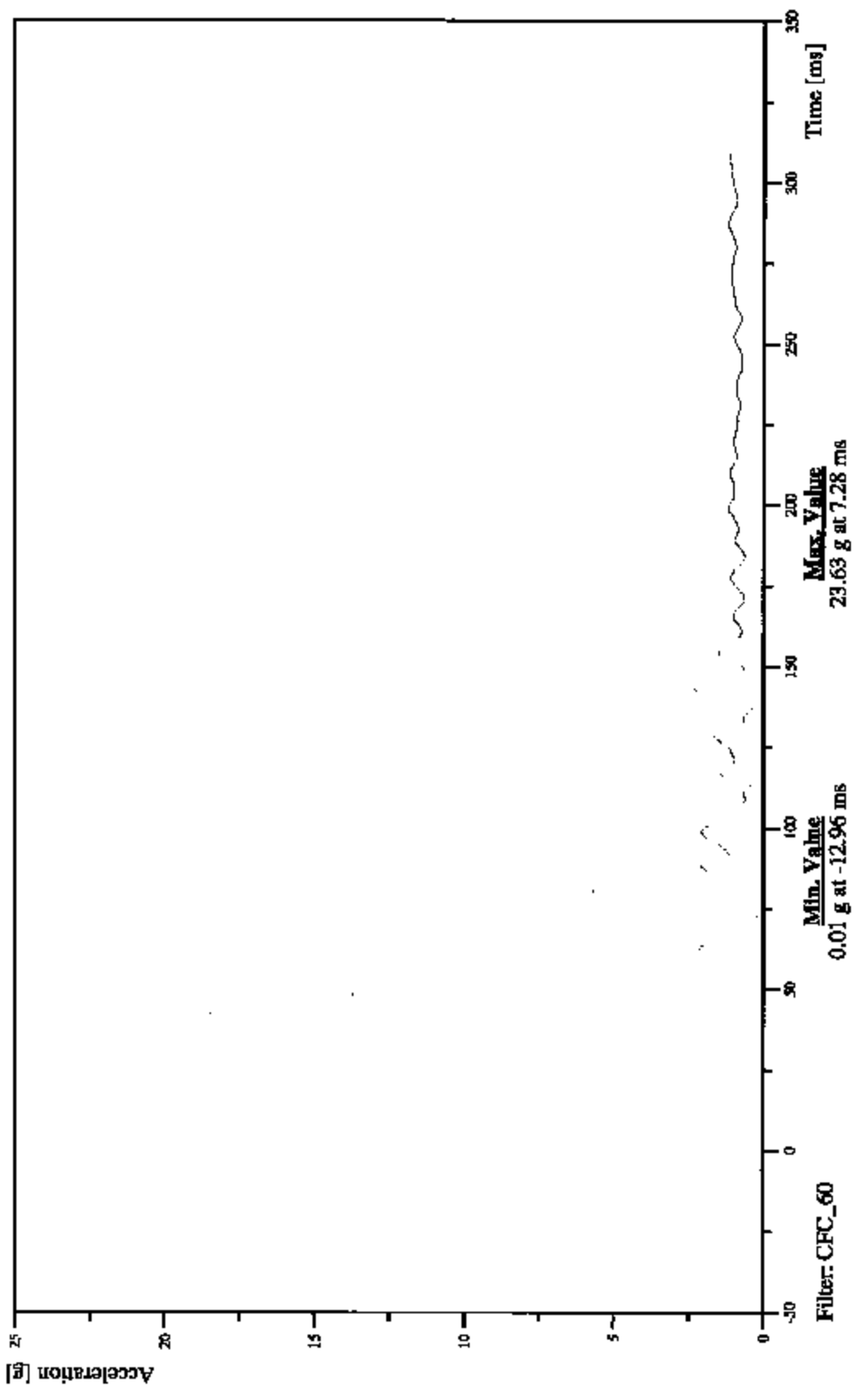
Max. Value
0.88 km/hr at 111.68 ms

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy: 05/07/2004
Time: 11:01
RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION VS TIME (#2)

Customer: NEITSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

RRSRG1

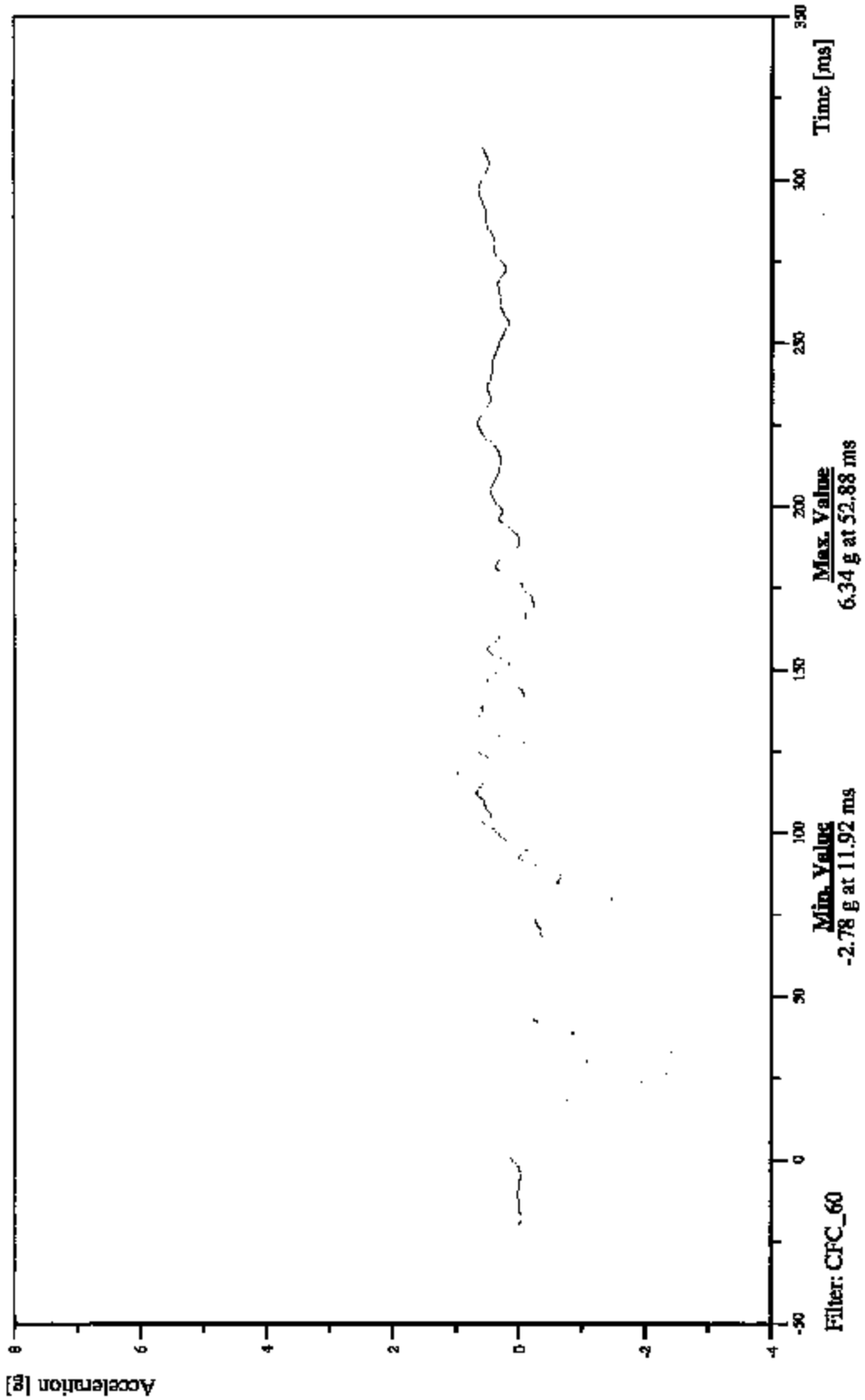


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:50
REAR FLOORPAN ABOVE AXLE (X) ACCELERATION VS TIME (#3)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

RDKXG1



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

04/07/2005

Time: 11:01

REAR FLOORPAN ABOVE AXLE (X) VELOCITY VS TIME (#3)

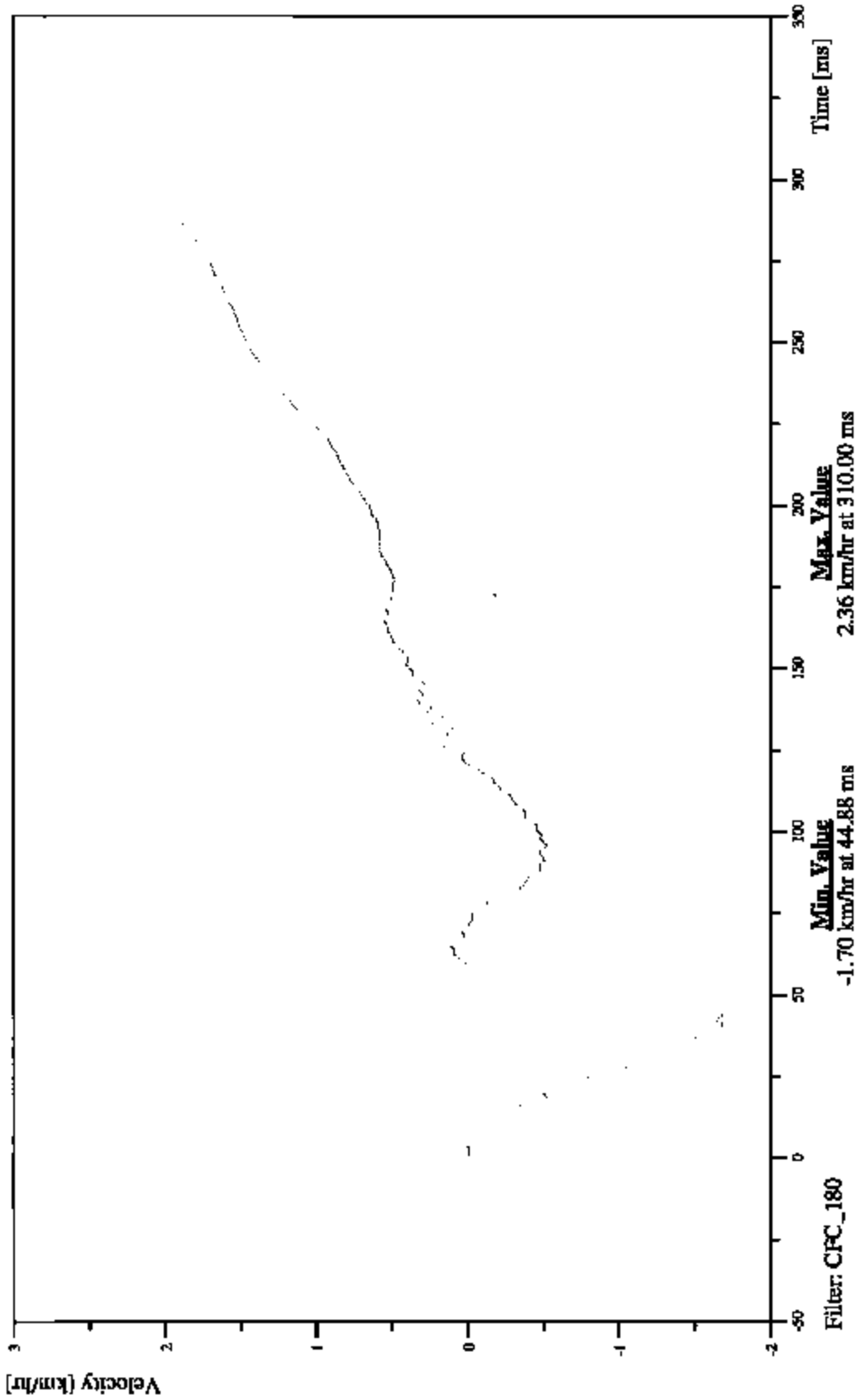
Customer: NHTSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

RDKXXV1



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Time: 04/07/2005

Time: 11:01

REAR FLOORPAN ABOVE AXLE (X) ACCELERATION VS TIME (#3)

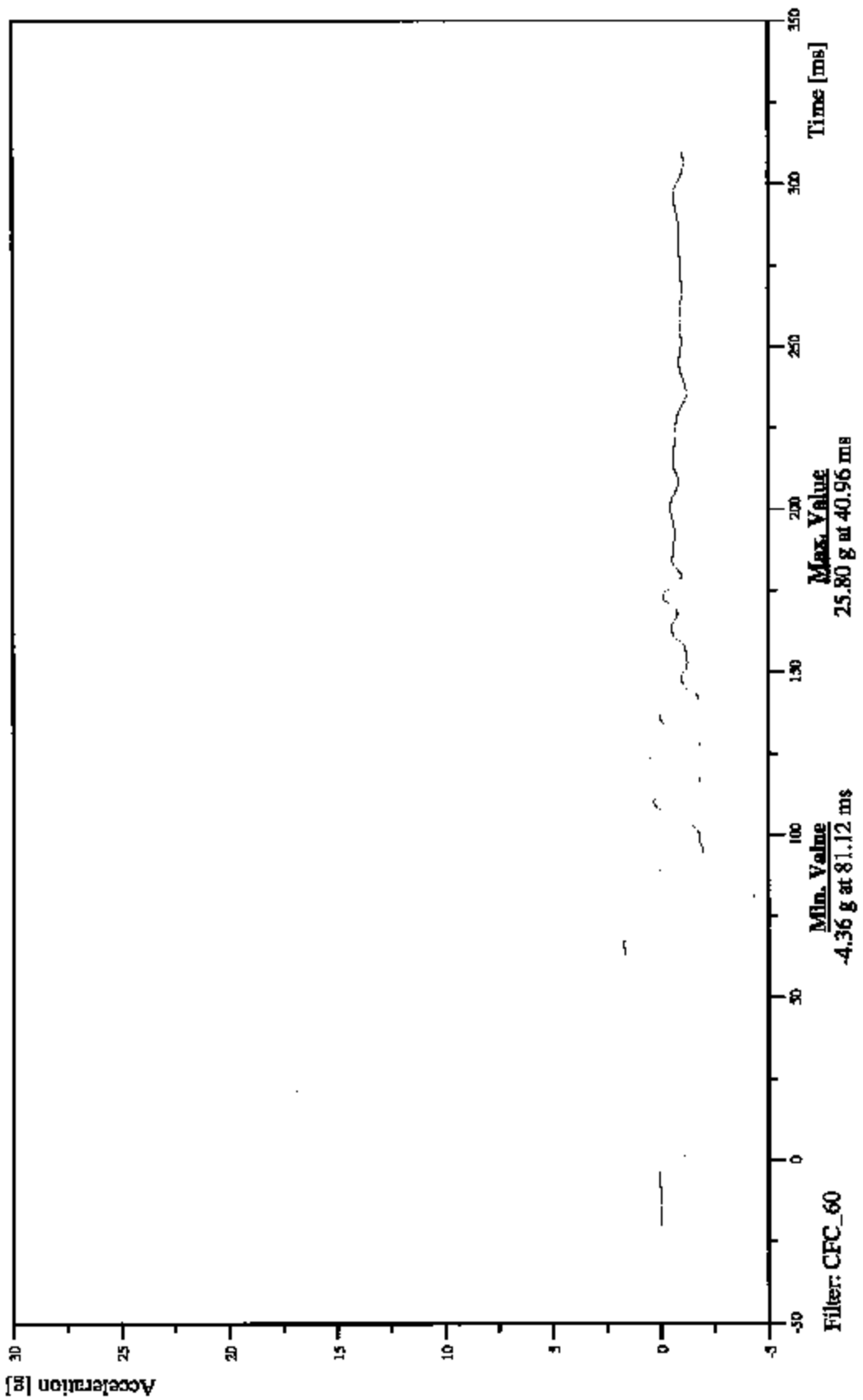
Customer: NHTSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

RDKYG1

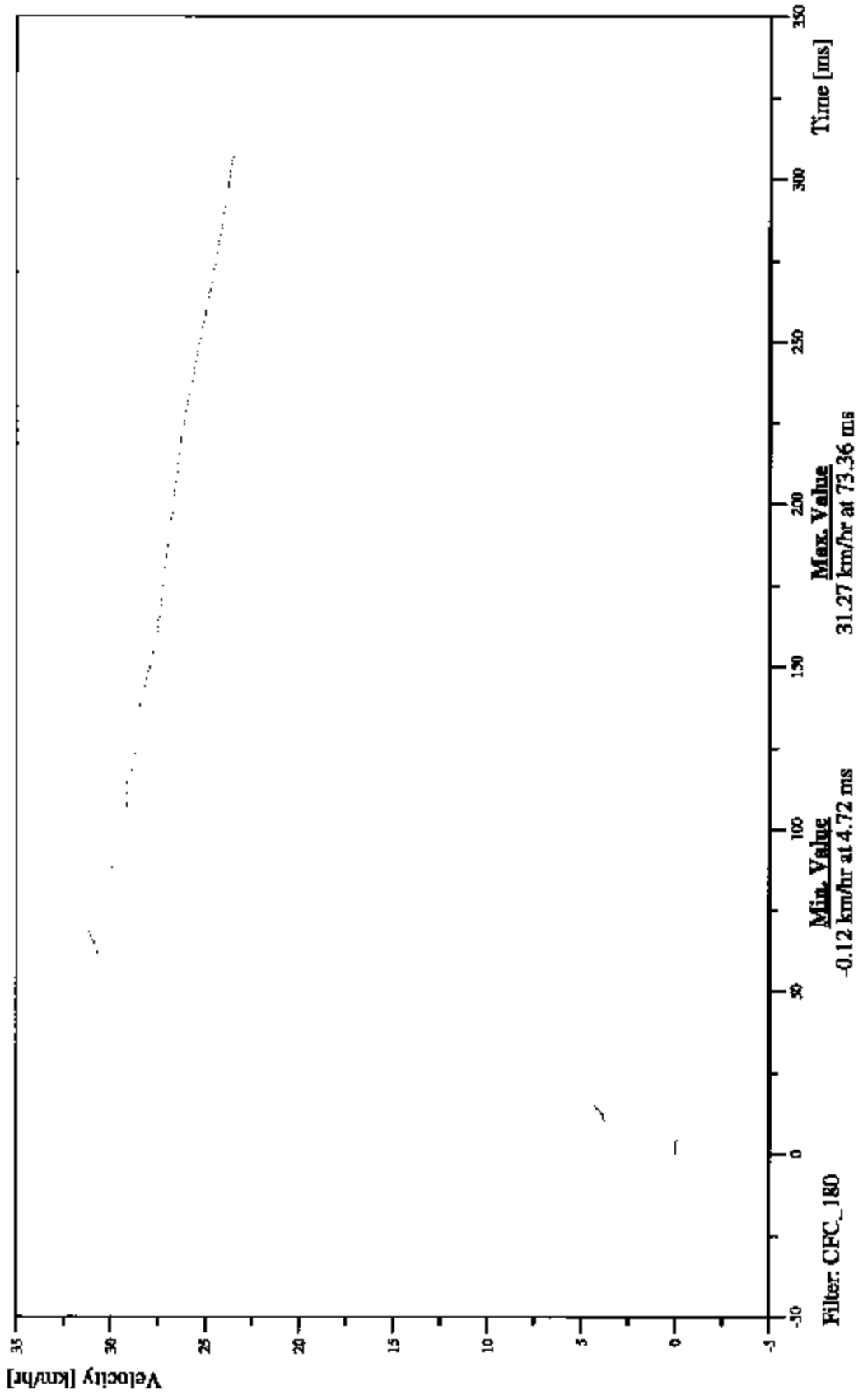


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 04/07/2005
Time: 11:01
REAR FLOORPAN ABOVE AXLE (Y) VELOCITY VS TIME (#3)

Customer: NHTSA
Test Number: C555(M)

TRC Inc. Test Lab: CTF
Test Number: 050413

RDKYV1

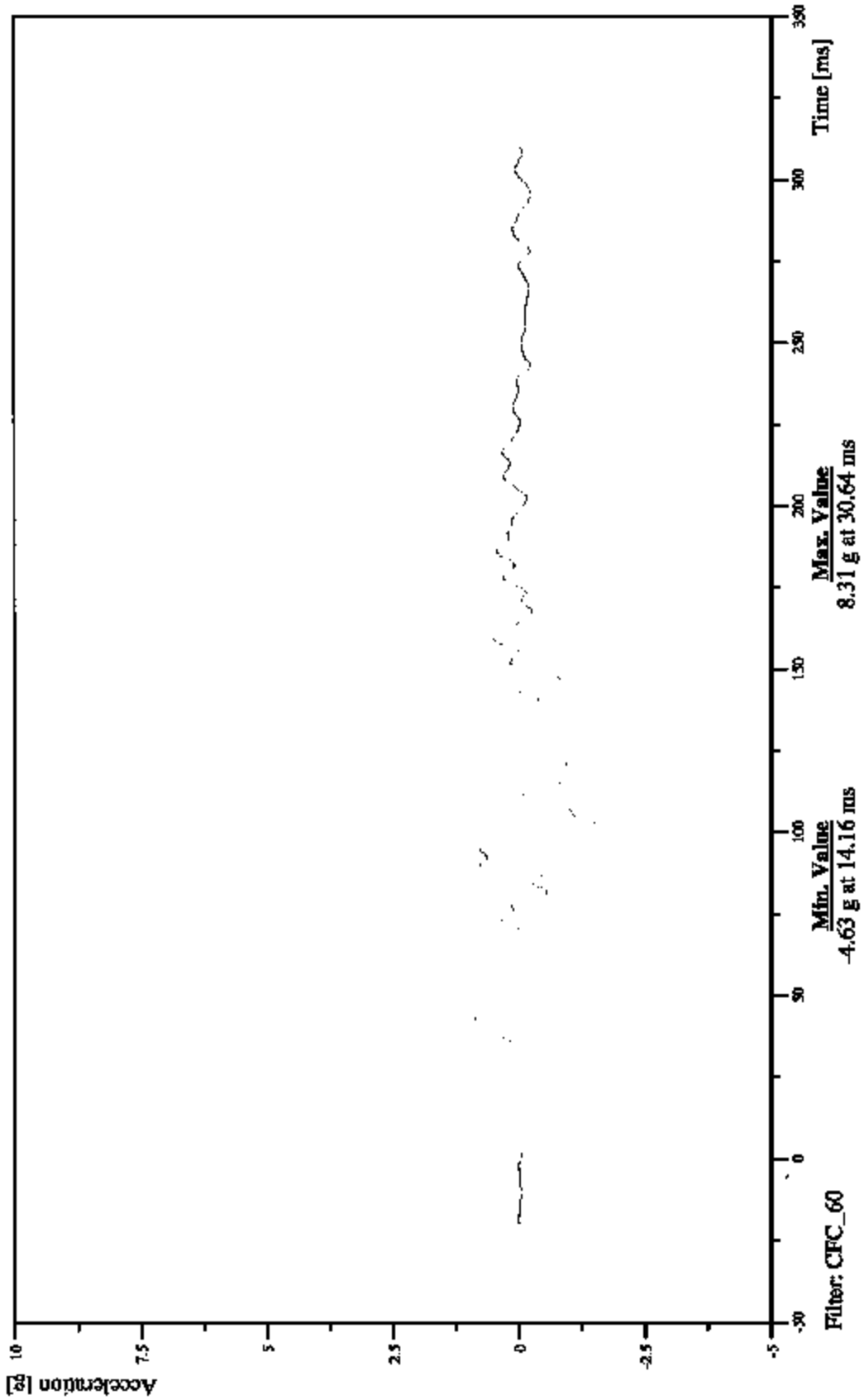


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
REAR FLOORPAN ABOVE AXLE (Z) ACCELERATION VS TIME (#3)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

RDKZG1

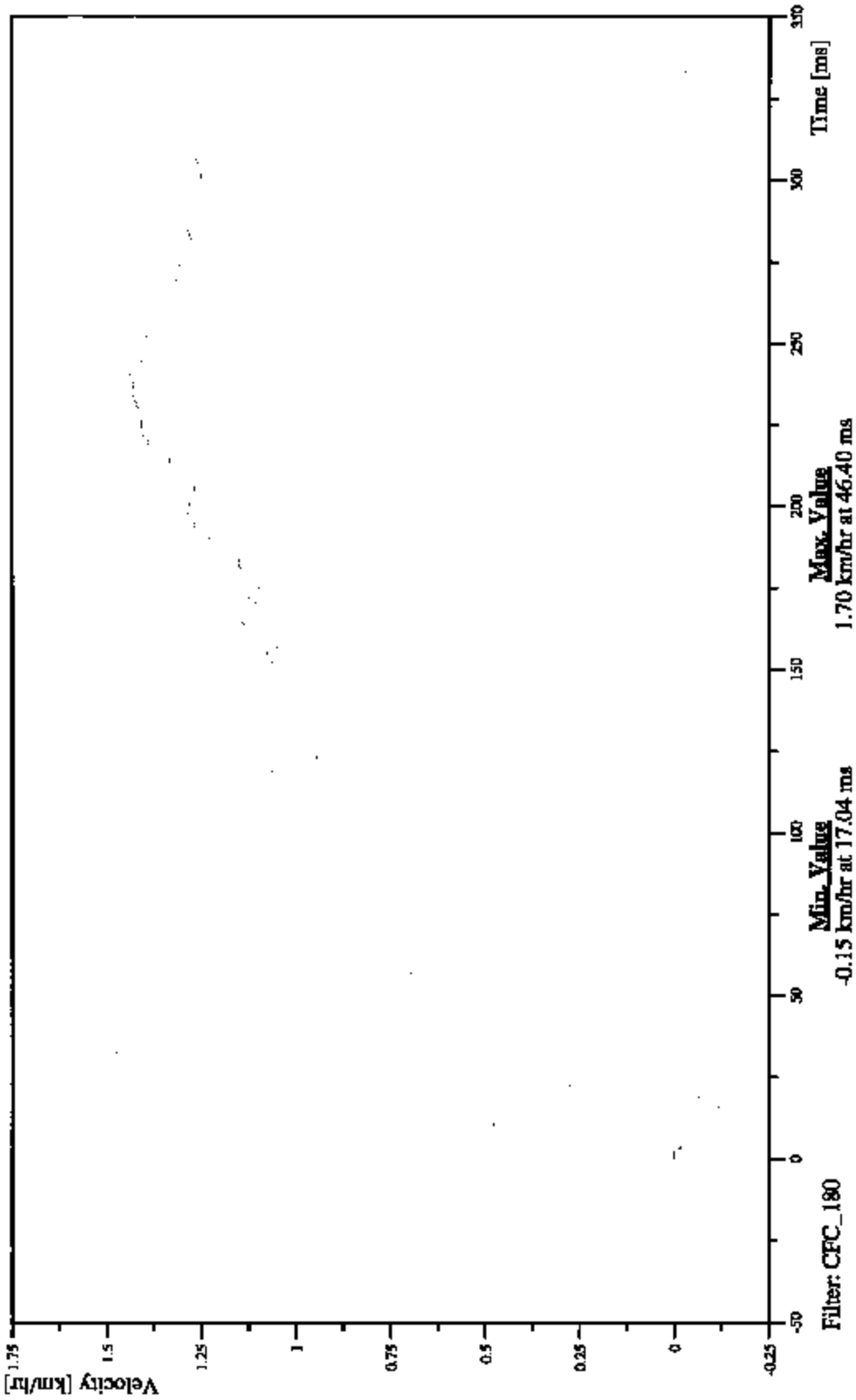


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 1:50
REAR FLOORPAN ABOVE AXLE (Z) VELOCITY VS TIME (#3)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

RDKZV1



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Date: 04/07/2005

Time: 11:01

REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION VS TIME (#3)

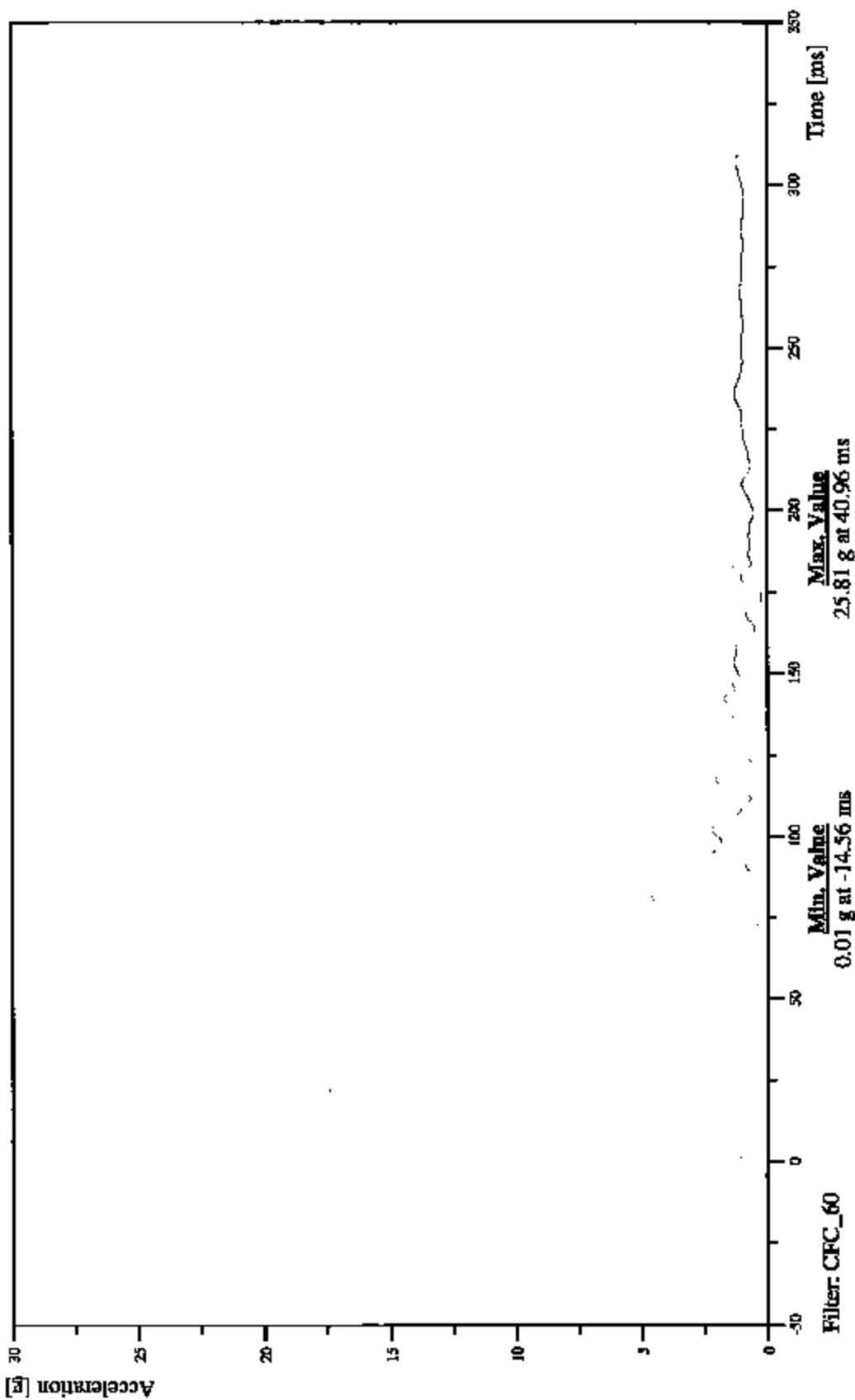
Customer: NHTSA

TRC Inc. Test Lab: CTF

Test Number: C55500

Test Number: 050413

RDKRG1

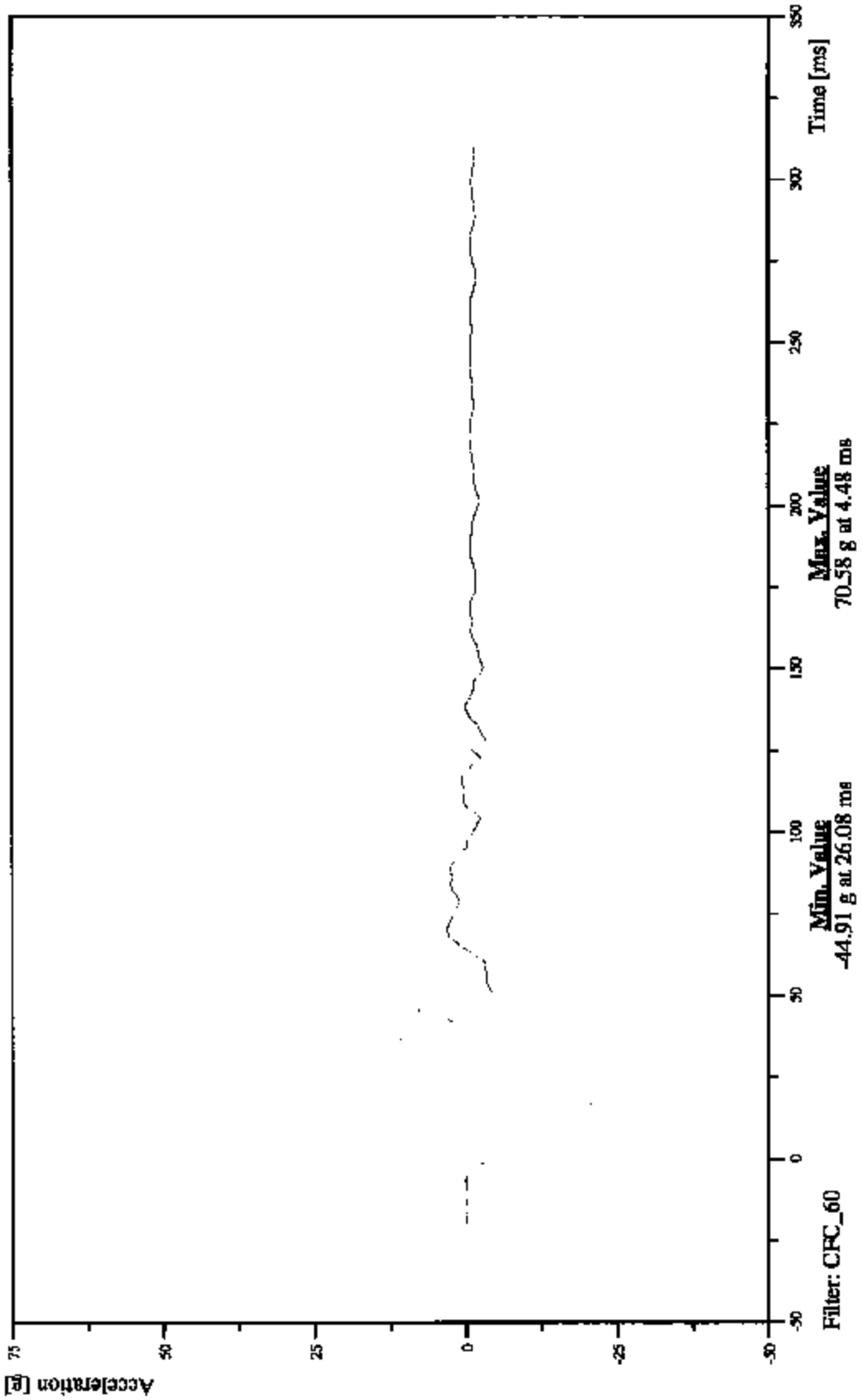


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
LEFT SIDE SILL AT FRONT SEAT (C) ACCELERATION VS. TIME (#5)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LFSYGI



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Time: 01:07:2005

LEFT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME (#5)

Time: 01:01

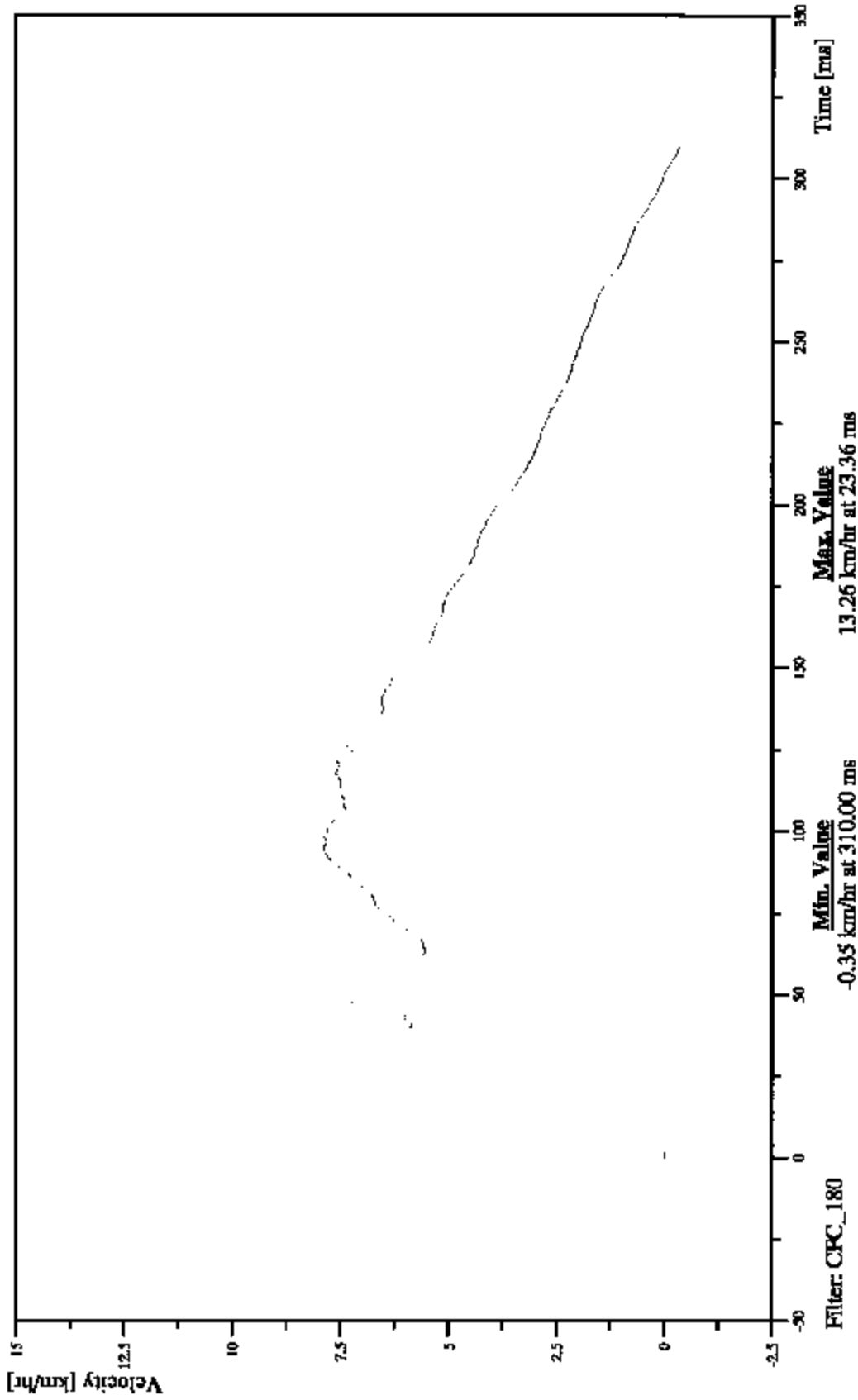
Customer: NHTSA

TRC Inc. Test Lab: CTF

Test Number: C55500

Test Number: 050413

LFSYV1



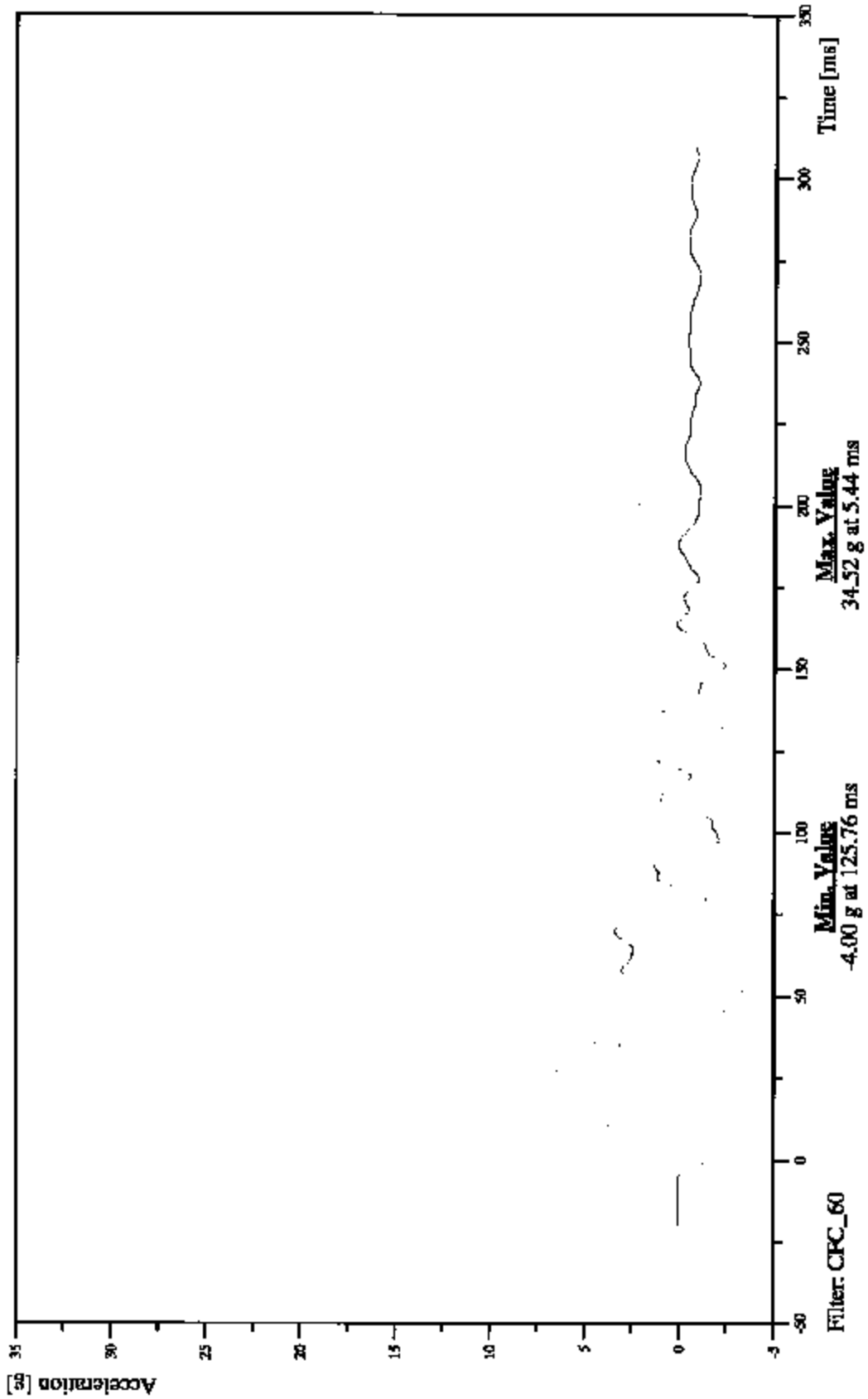
48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
LEFT SIDE SILL AT REAR SEAT (O) ACCELERATION VS TIME

Time: 11:01

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LRSYG1

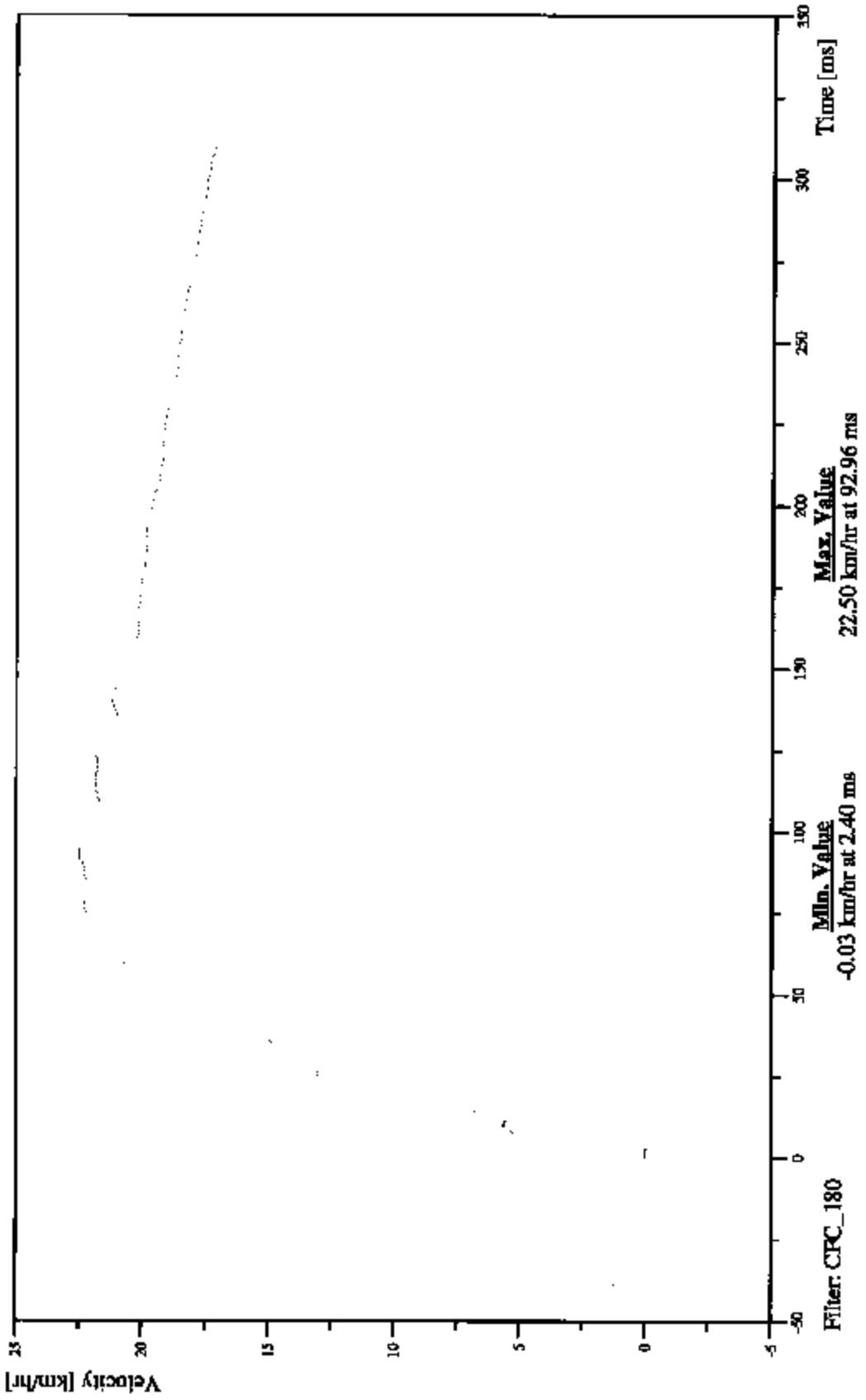


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy: 04/07/2005
Time: 11:01
LEFT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LRSYV1



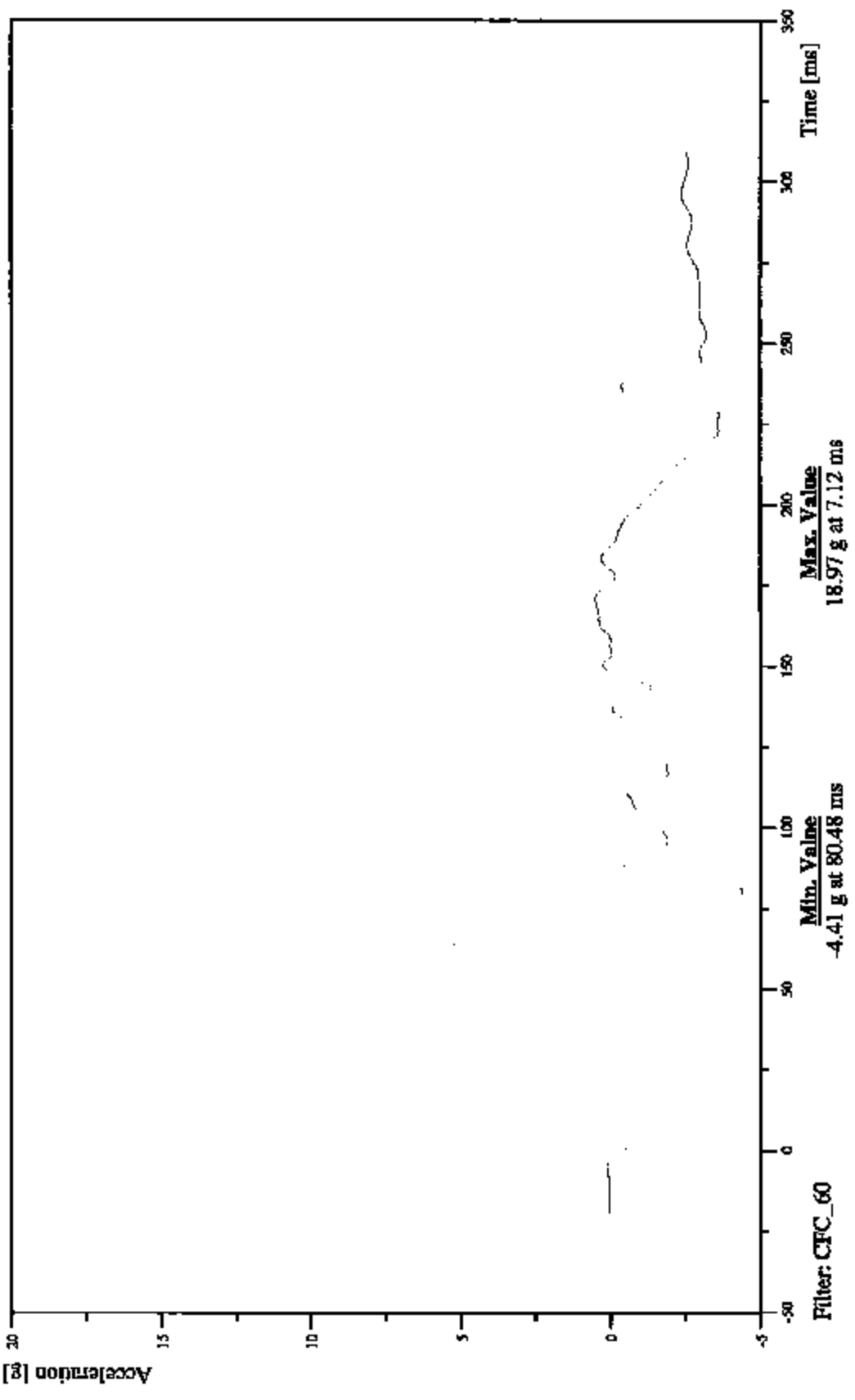
48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
RIGHT REAR OCCUPANT COMPARTMENT (Y) ACCELERATION VS. TIME (#7)

04/07/2005
Time: 11:01

Customer: NHTSA
Test Number: C555(M)

TRC Inc. Test Lab: CTF
Test Number: 050413

RRTYG1



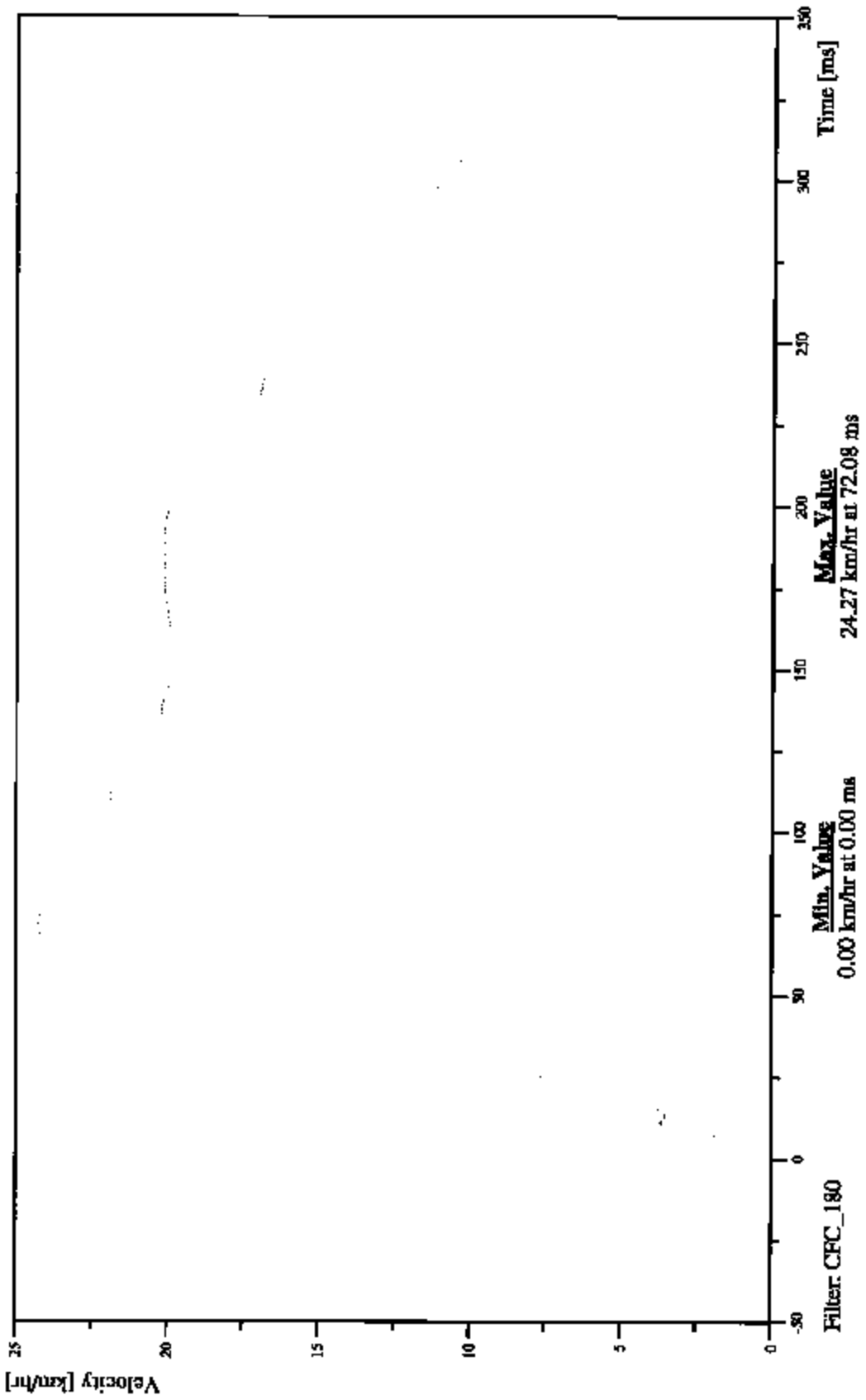
Filter: CFC_60

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 04/07/2005
RIGHT REAR OCCUPANT COMPARTMENT (Y) VELOCITY VS TIME (#7)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

RRTYV1

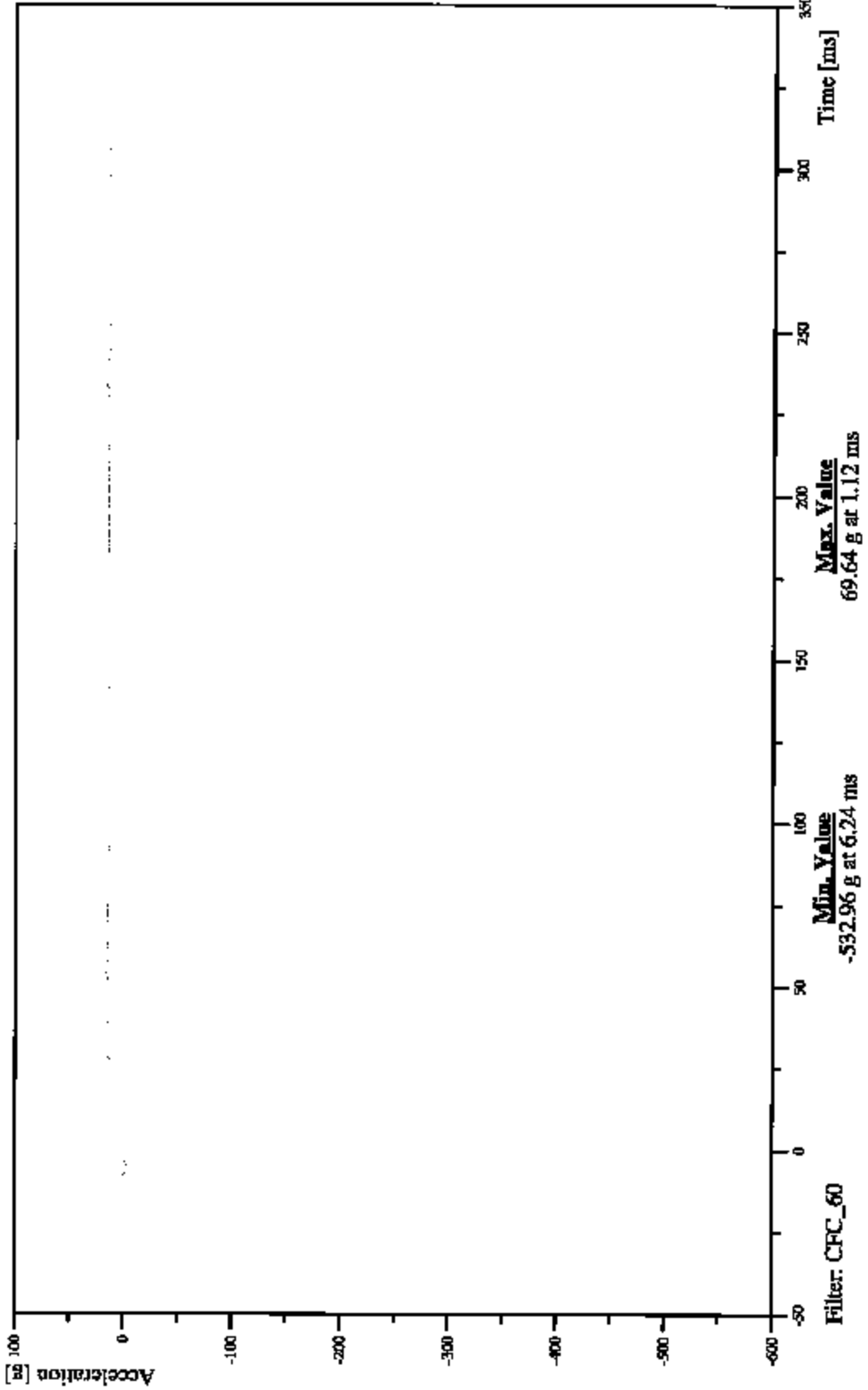


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 04/07/2005
LEFT LOWER A-POST. ACCELERATION VS TIME (#14)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LLAYG1

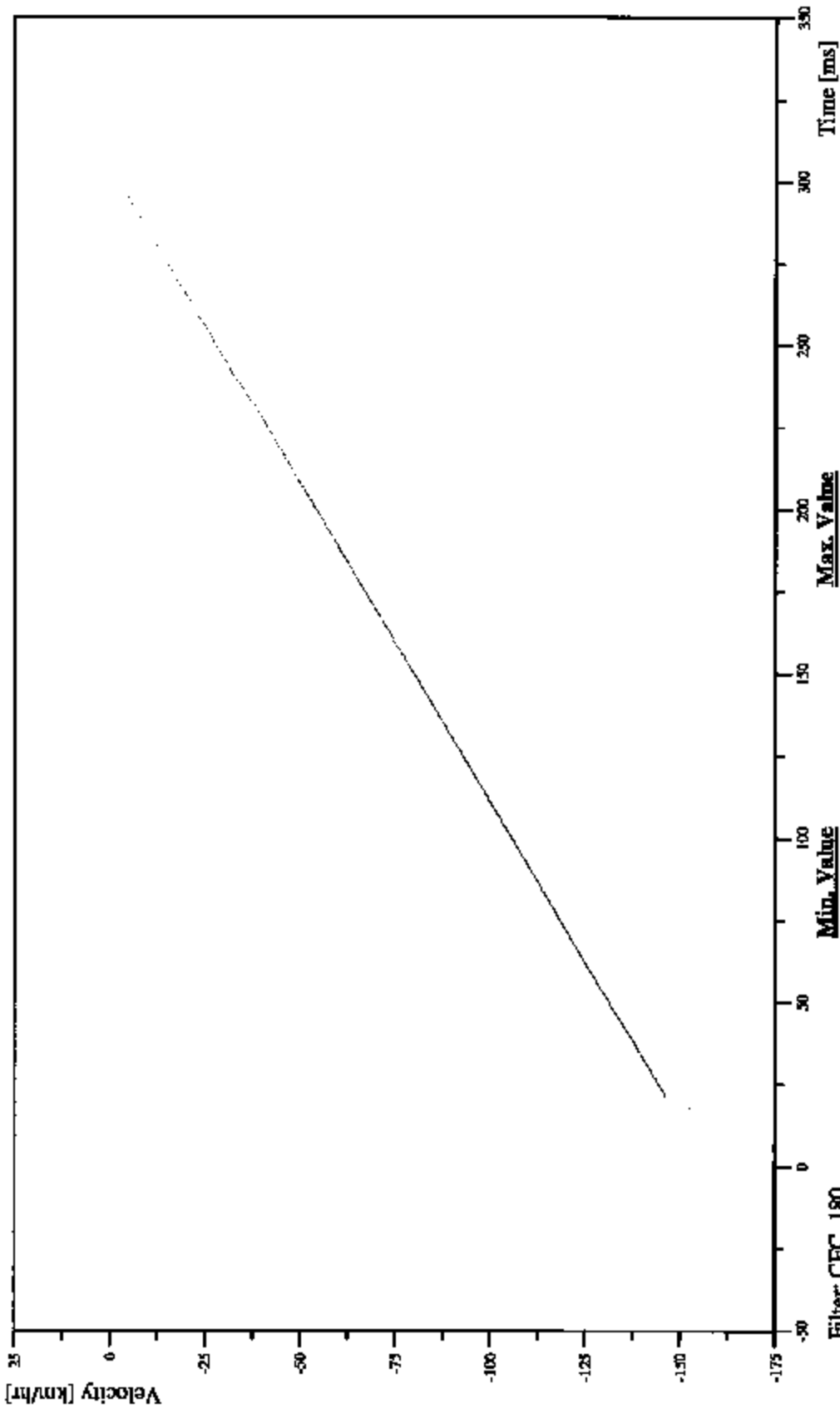


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
LEFT LOWER A-POST(Y) VELOCITY VS TIME (#14)

Customer: NHSTA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LLAYV1

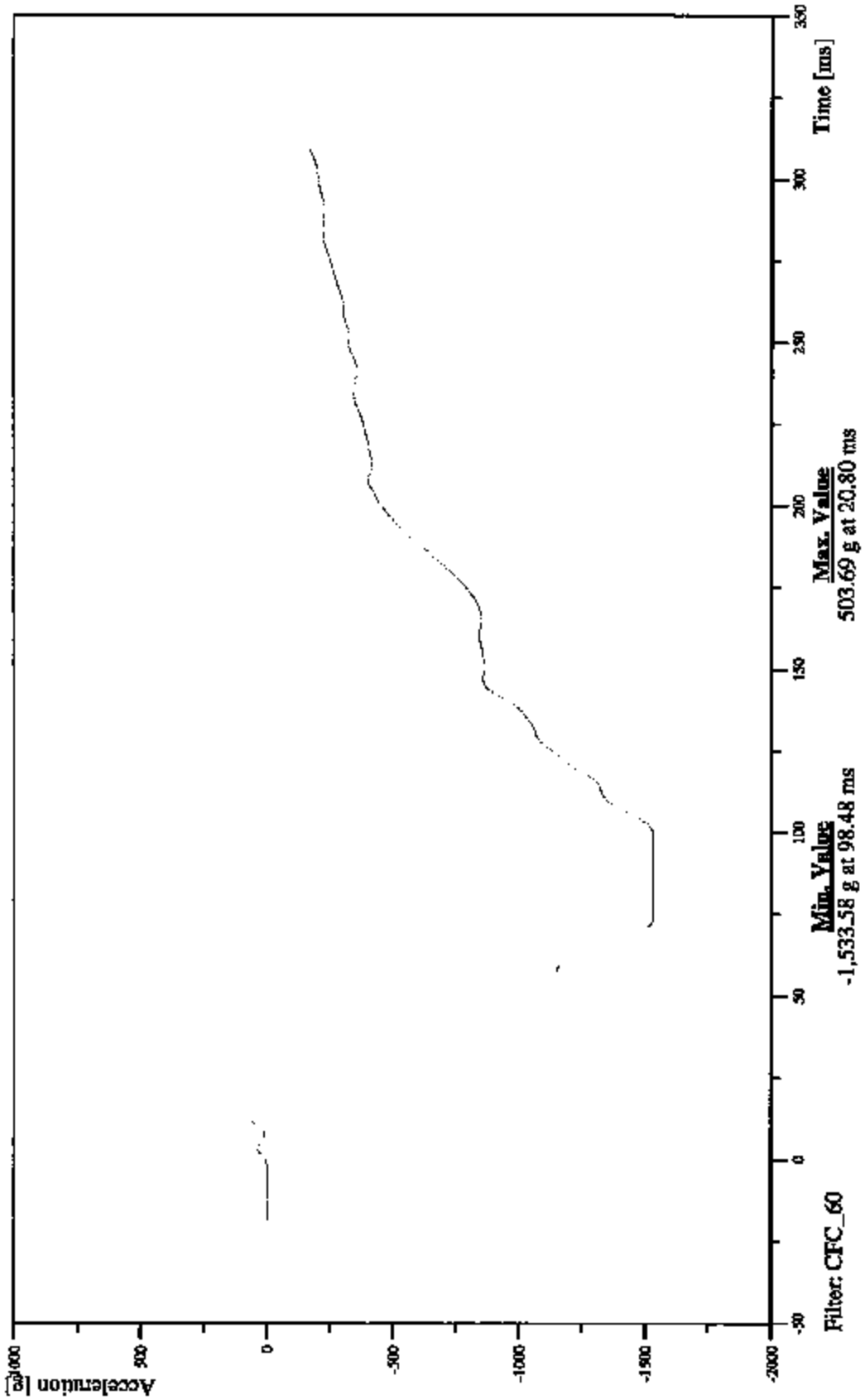


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
LEFT MID A-POST (Y) ACCELERATION VS TIME (#15)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LUAYG1



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

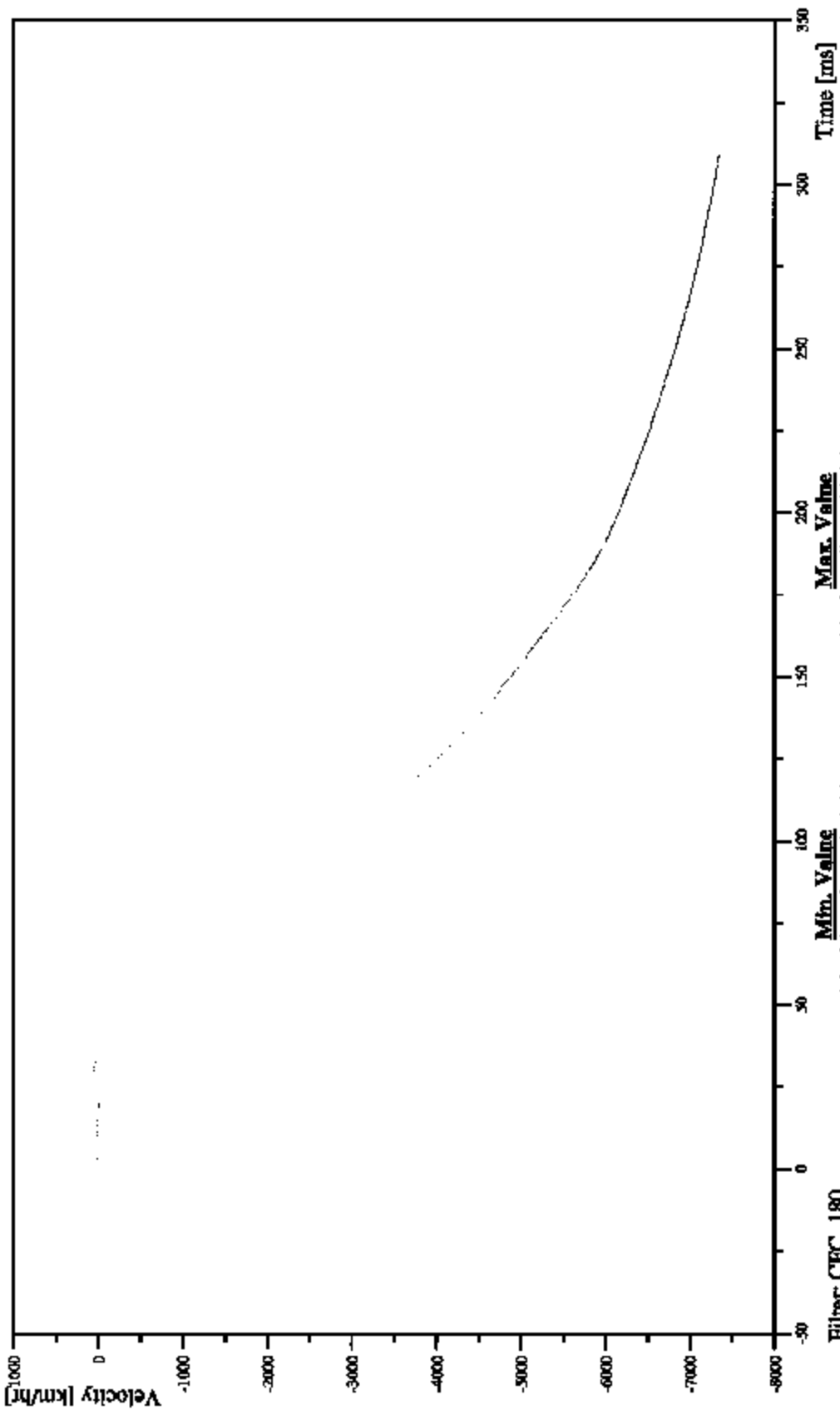
Time: 11:01

LEFT MID A-POST (Y) VELOCITY VS TIME (#15)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LUAYV1



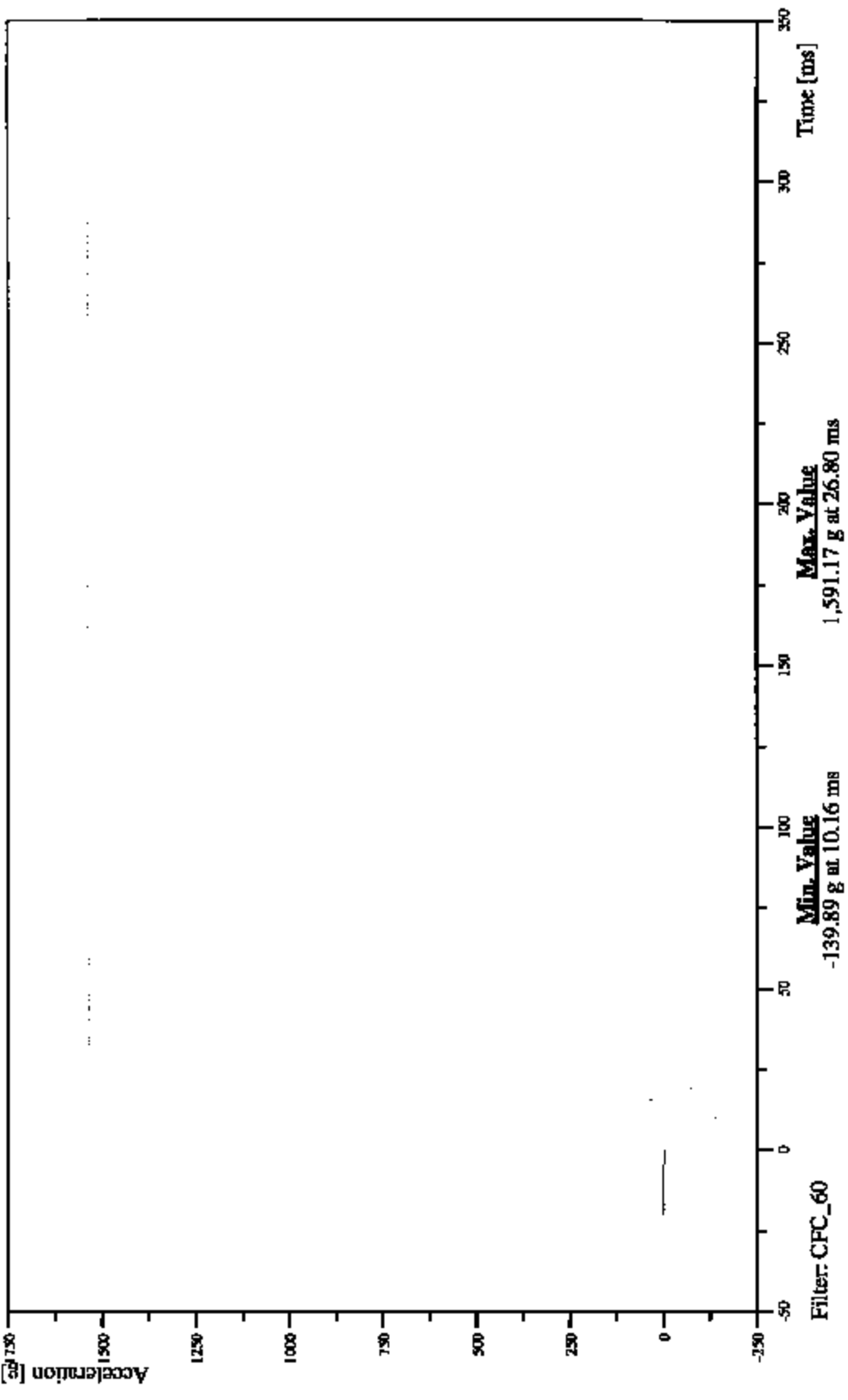
48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
LEFT LOWER B-POST (Y) ACCELERATION VS TIME (#12)

04/07/2005
Time: 11:01

Customer: NH TSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LLBYG1



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

04/07/2001
Time: 11:01

LEFT LOWER B-POST (V) VELOCITY VS TIME (#12)

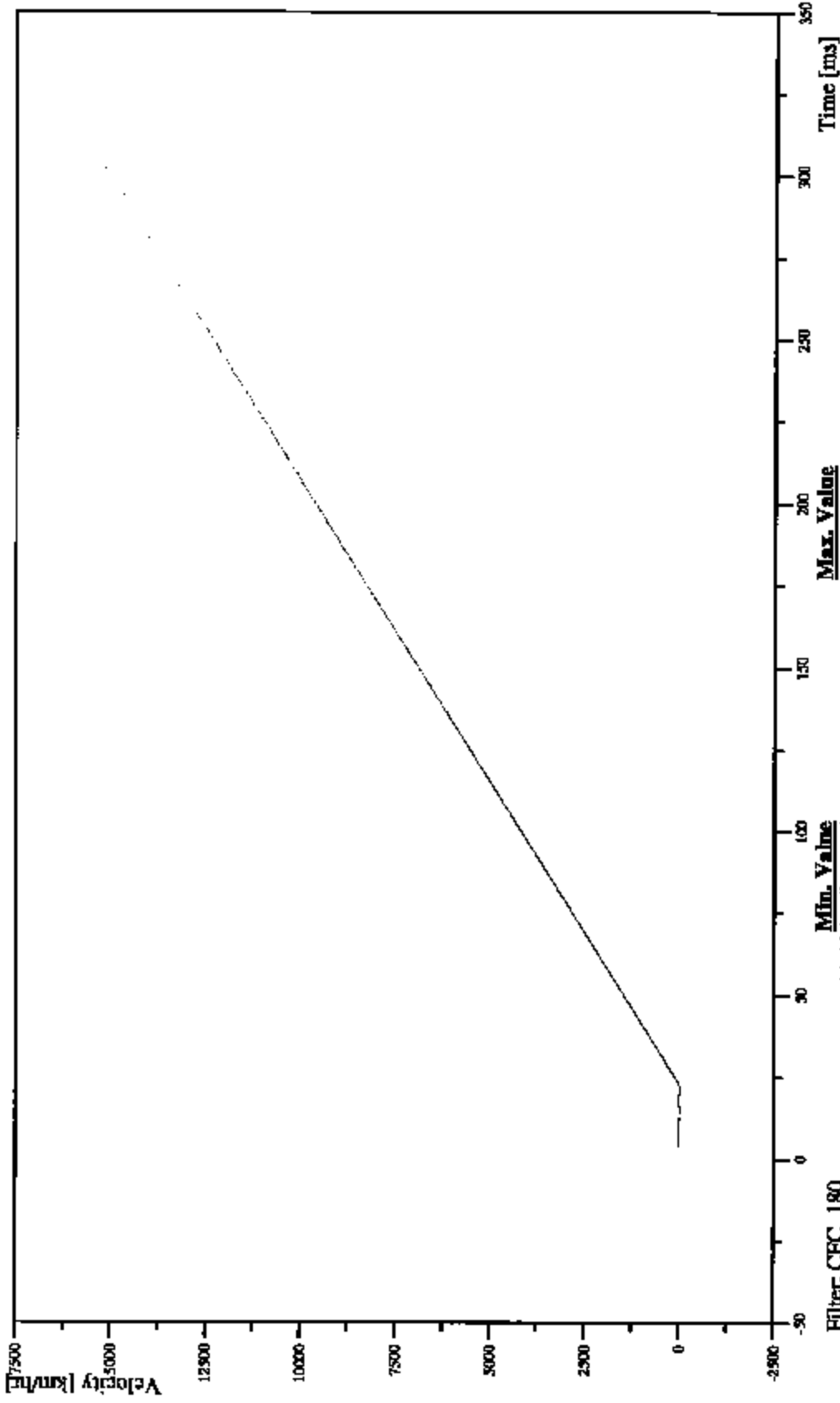
Customer: NHTSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

LLBYV1

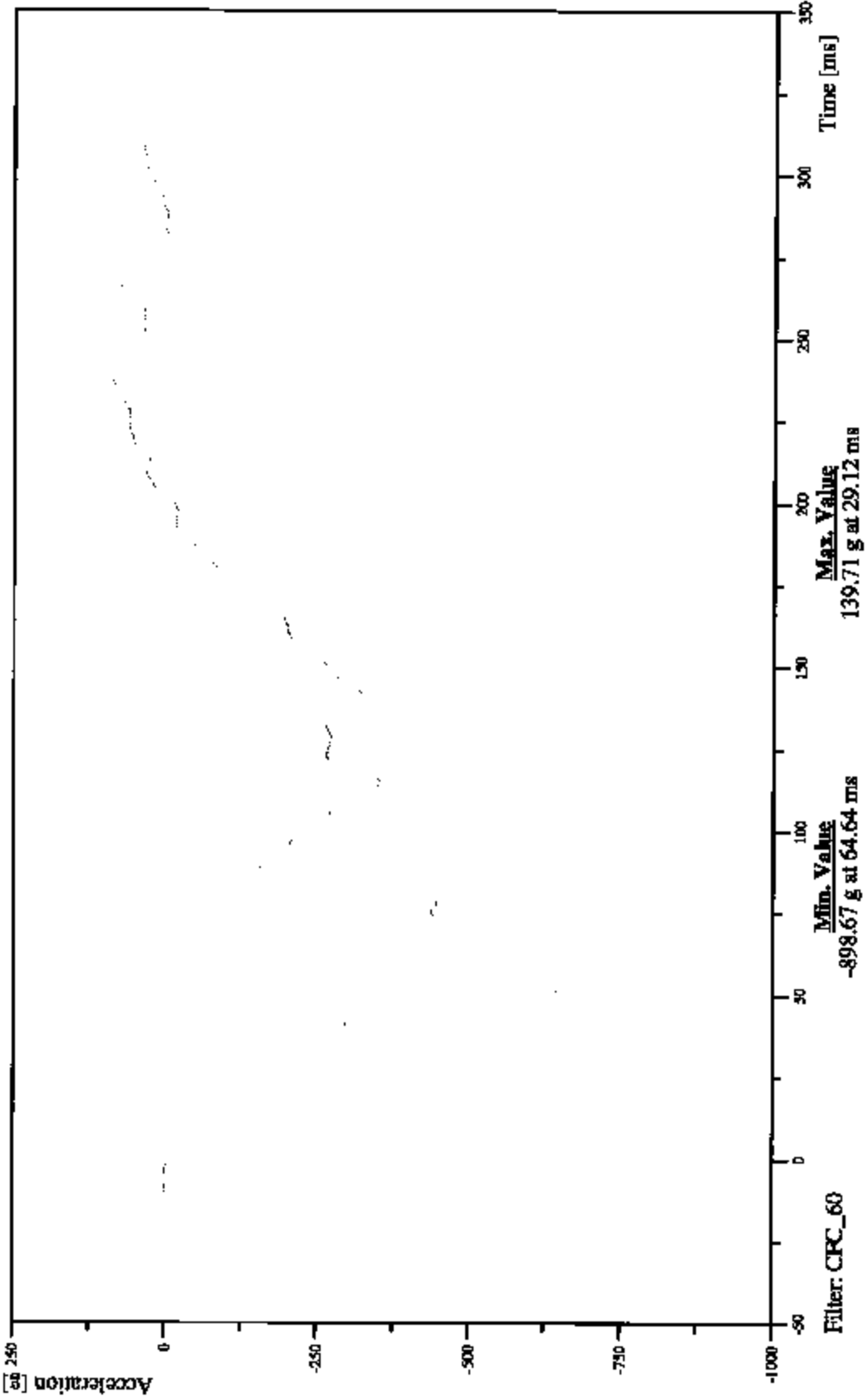


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Date: 04/07/2005
Time: 11:01
LEFT MID B-POST (Y) ACCELERATION VS TIME (#13)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LUBYGI



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

04/07/2005
Time: 11:50

LEFT MID B-POST (X) VELOCITY VS TIME (#13)

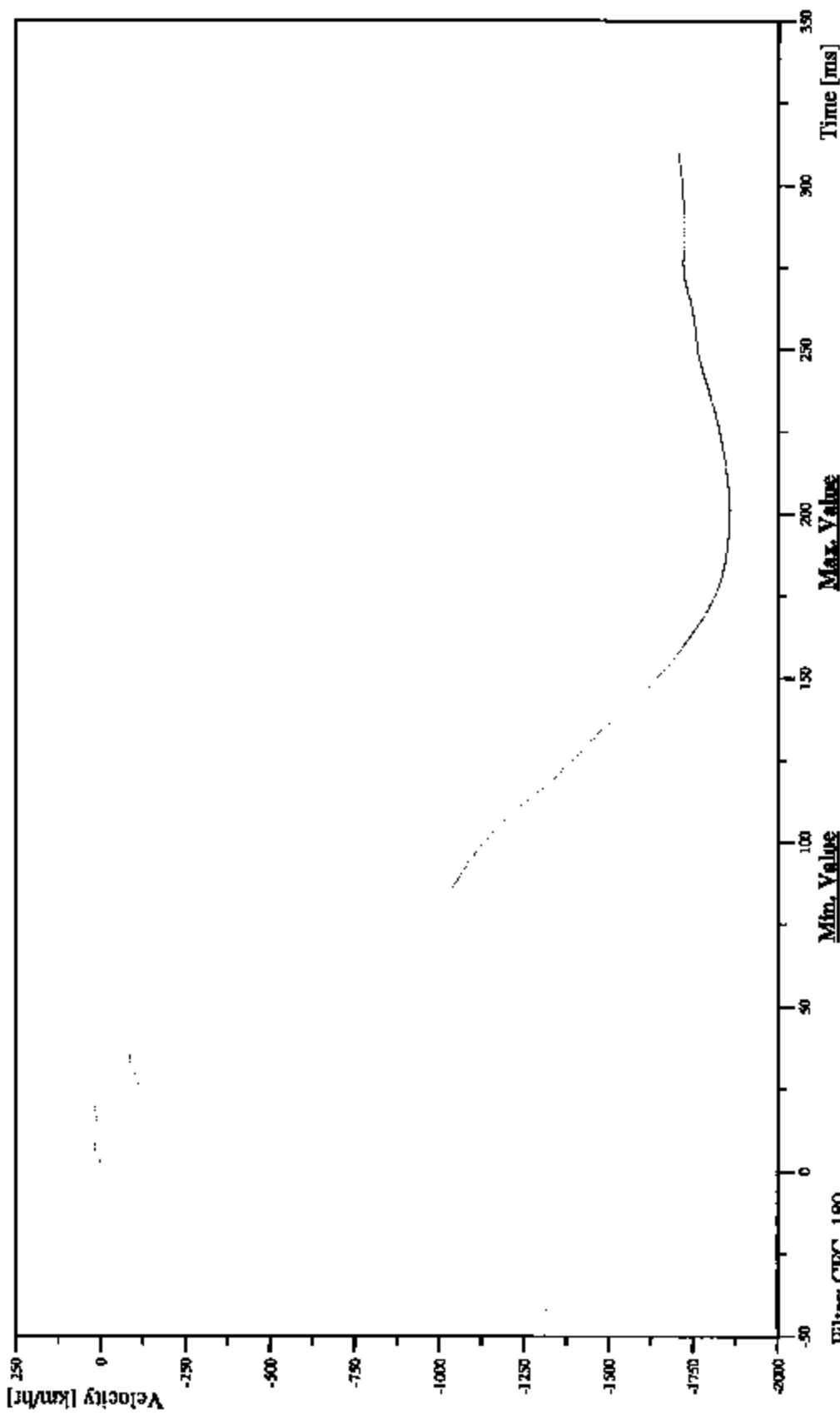
Customer: NHTSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

LUBYV1



48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Time: 11:01

LEFT FRONT SEAT TRACK (Y) ACCELERATION VS TIME (#16)

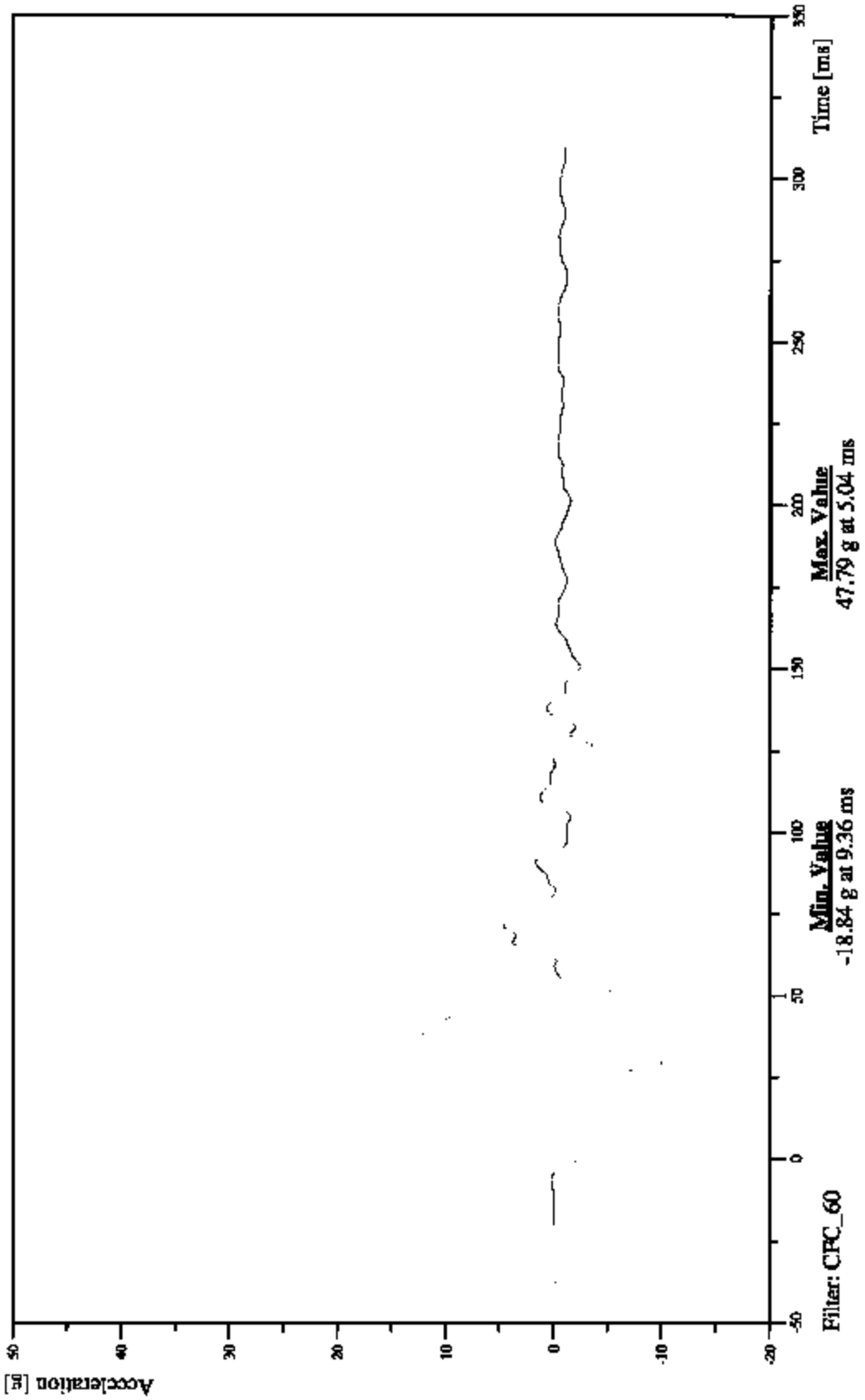
Customer: NHTSA

Test Number: C55500

TRC Inc. Test Lab: CTF

Test Number: 050413

LFTYGI



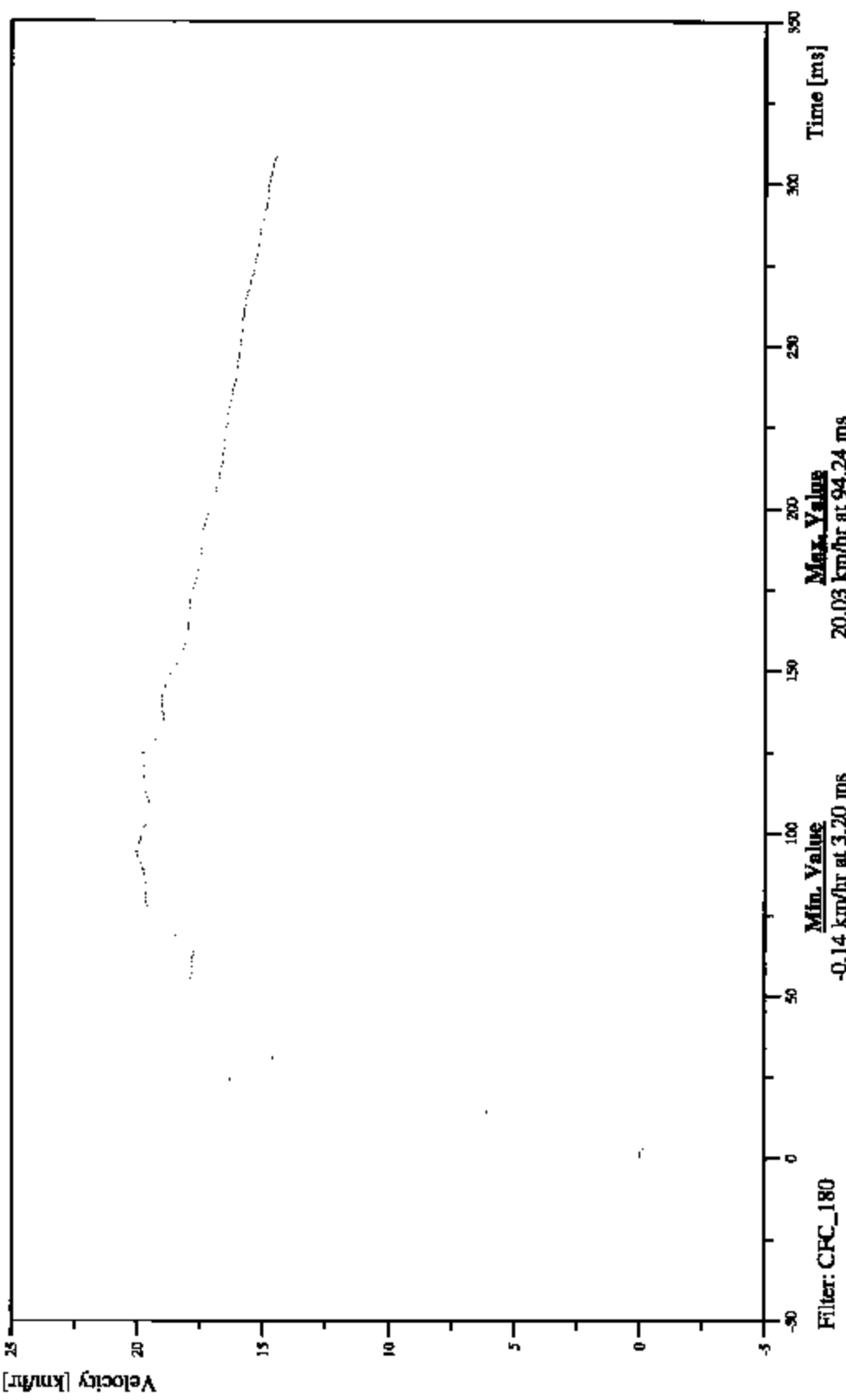
48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
LEFT FRONT SEAT TRACK CO VELOCITY VS. TIME (#16)

04/07/2005
Time 11:01

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LFTYV1

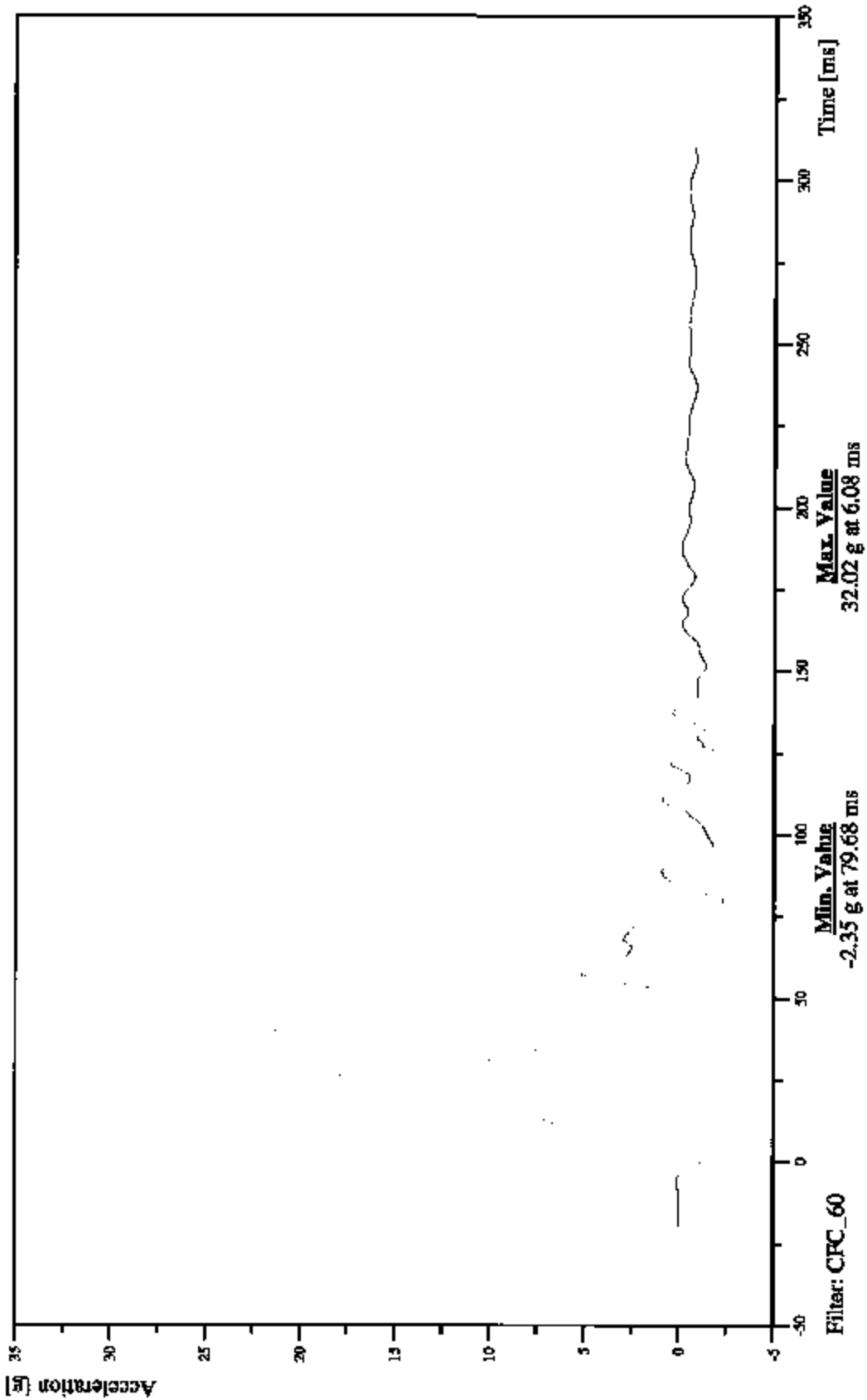


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Date: 04/07/2005
Time: 11:50
LEFT REAR SEAT TRACK (Y) ACCELERATION VS TIME

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LRTYGI

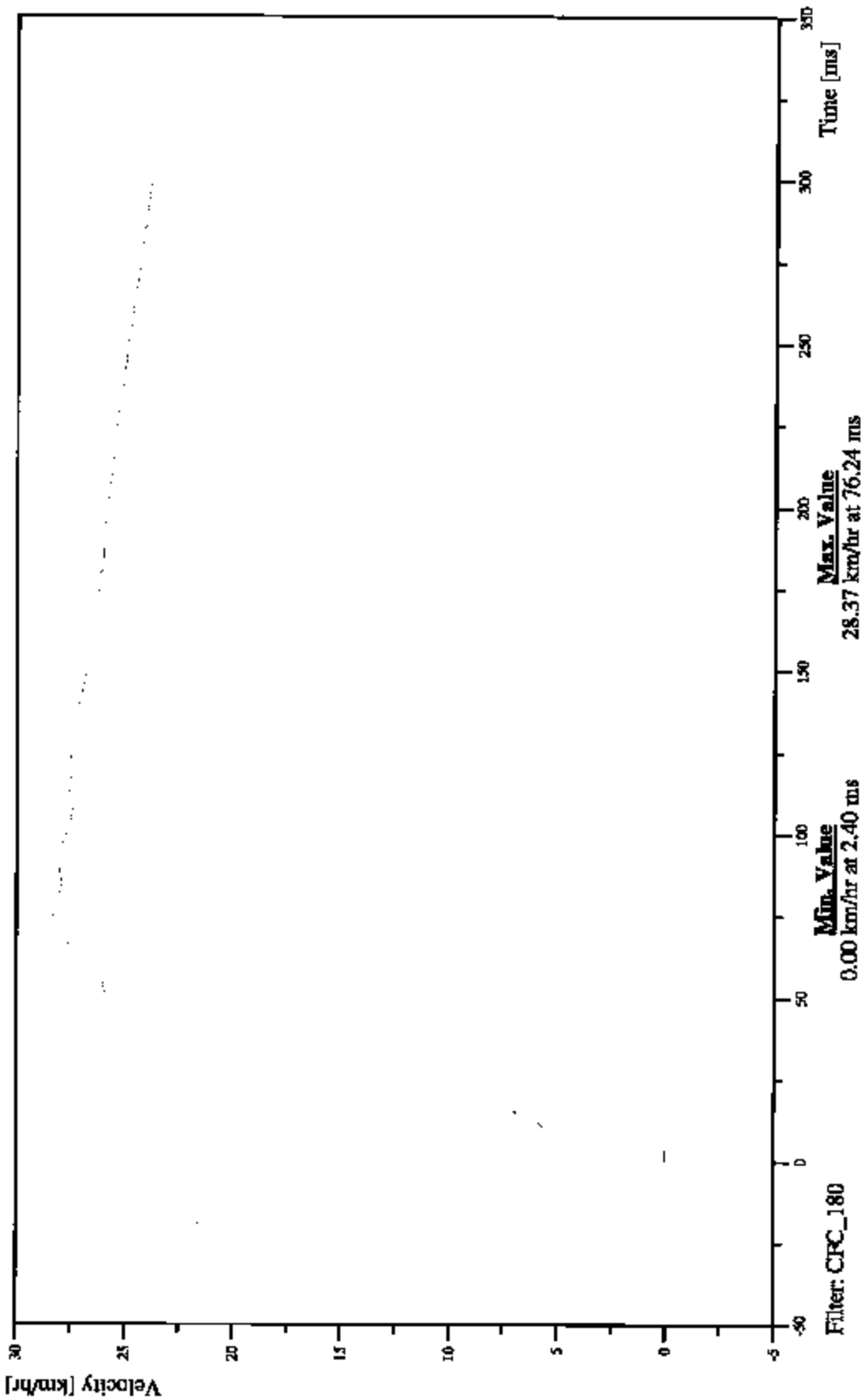


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
LEFT REAR SEAT TRACK (Y) VELOCITY VS TIME

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

LRTYV1

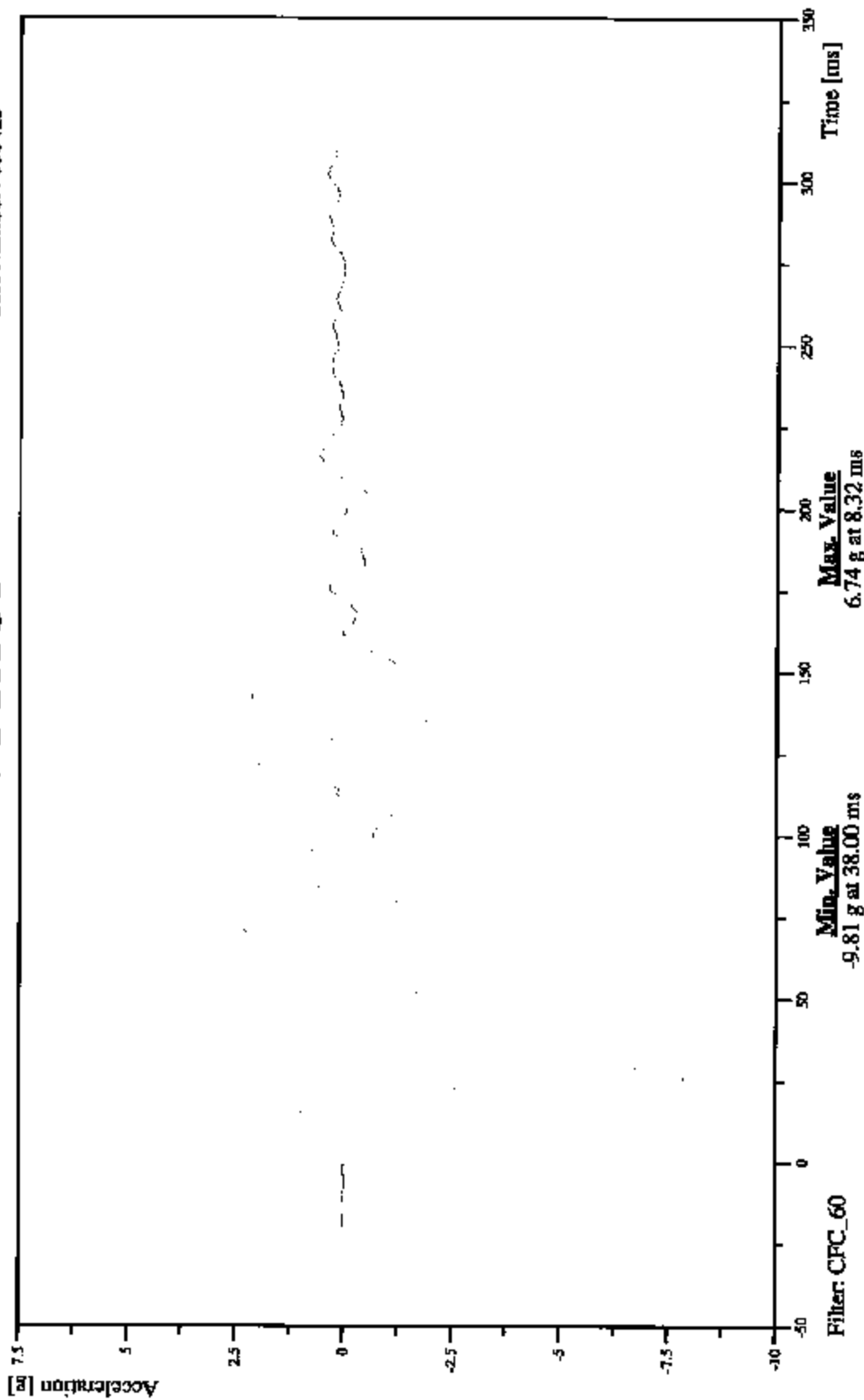


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 04/07/2005
VEHICLE CENTER OF GRAVITY (X) ACCELERATION VS TIME (#18)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

VCGXG1

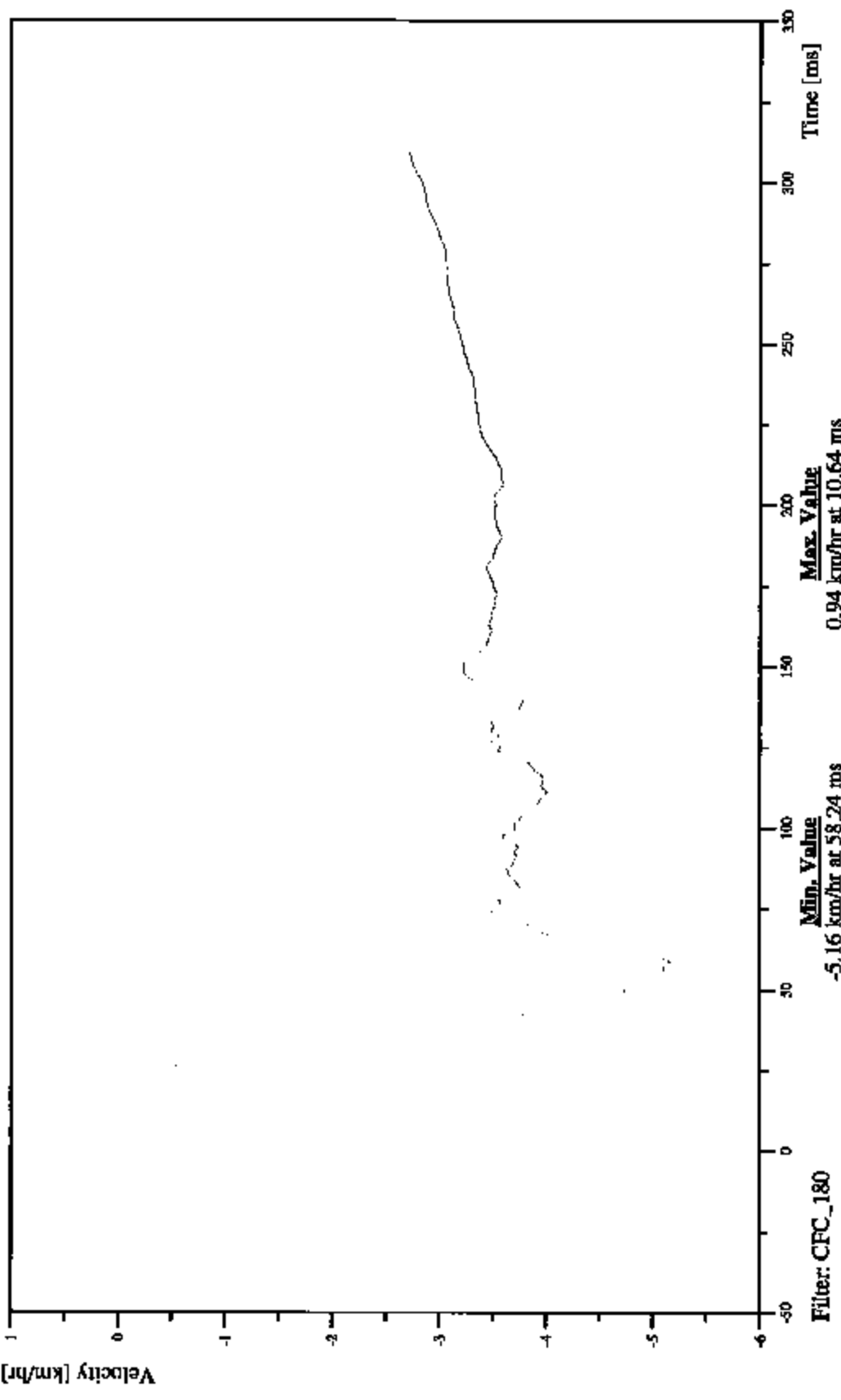


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:00
VEHICLE CENTER OF GRAVITY (X) VELOCITY VS TIME (#18)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

VCGXV1

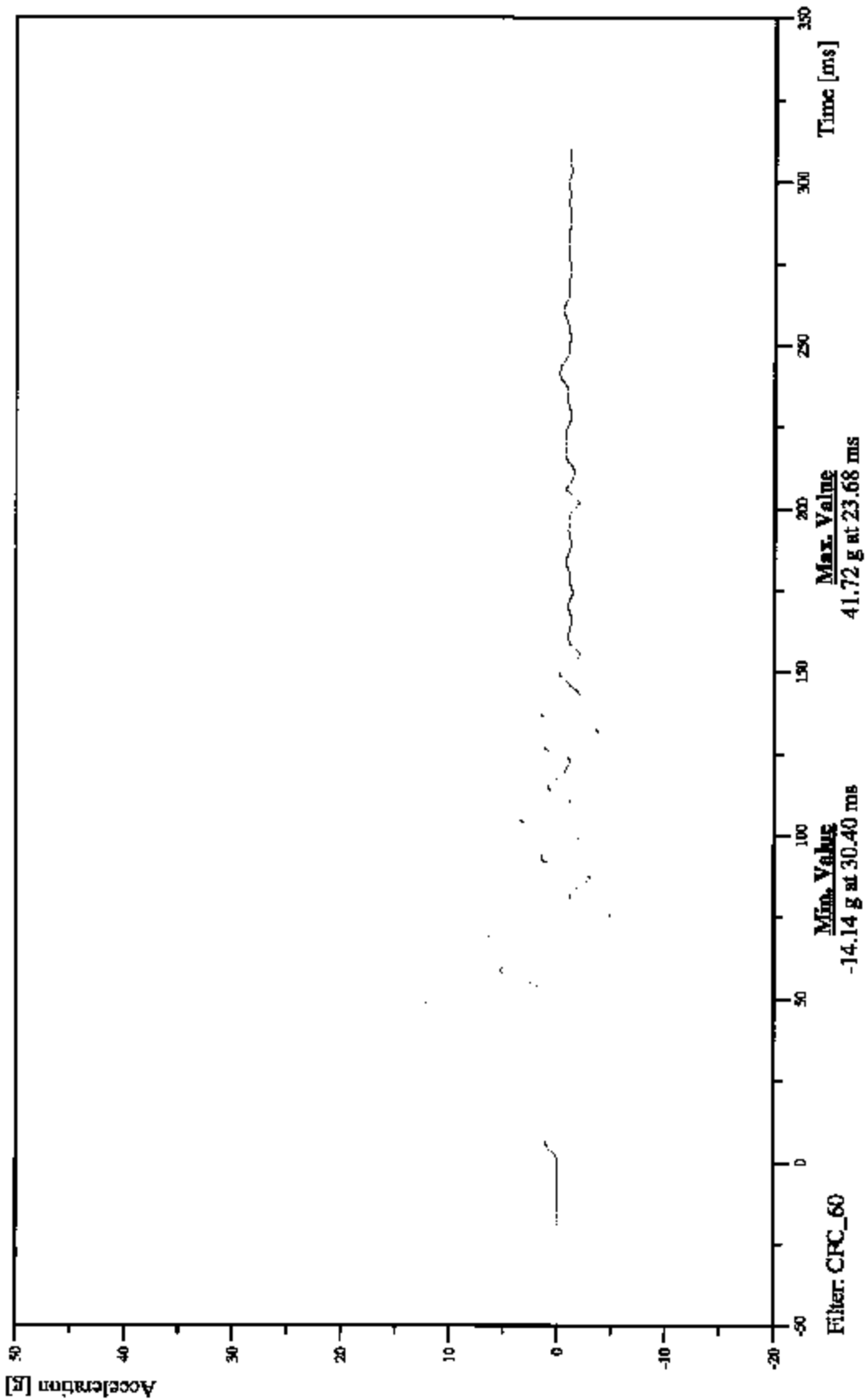


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 05/07/2005
Time: 11:01
VEHICLE CENTER OF GRAVITY (CG) ACCELERATION VS TIME (#18)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

VCCYGI

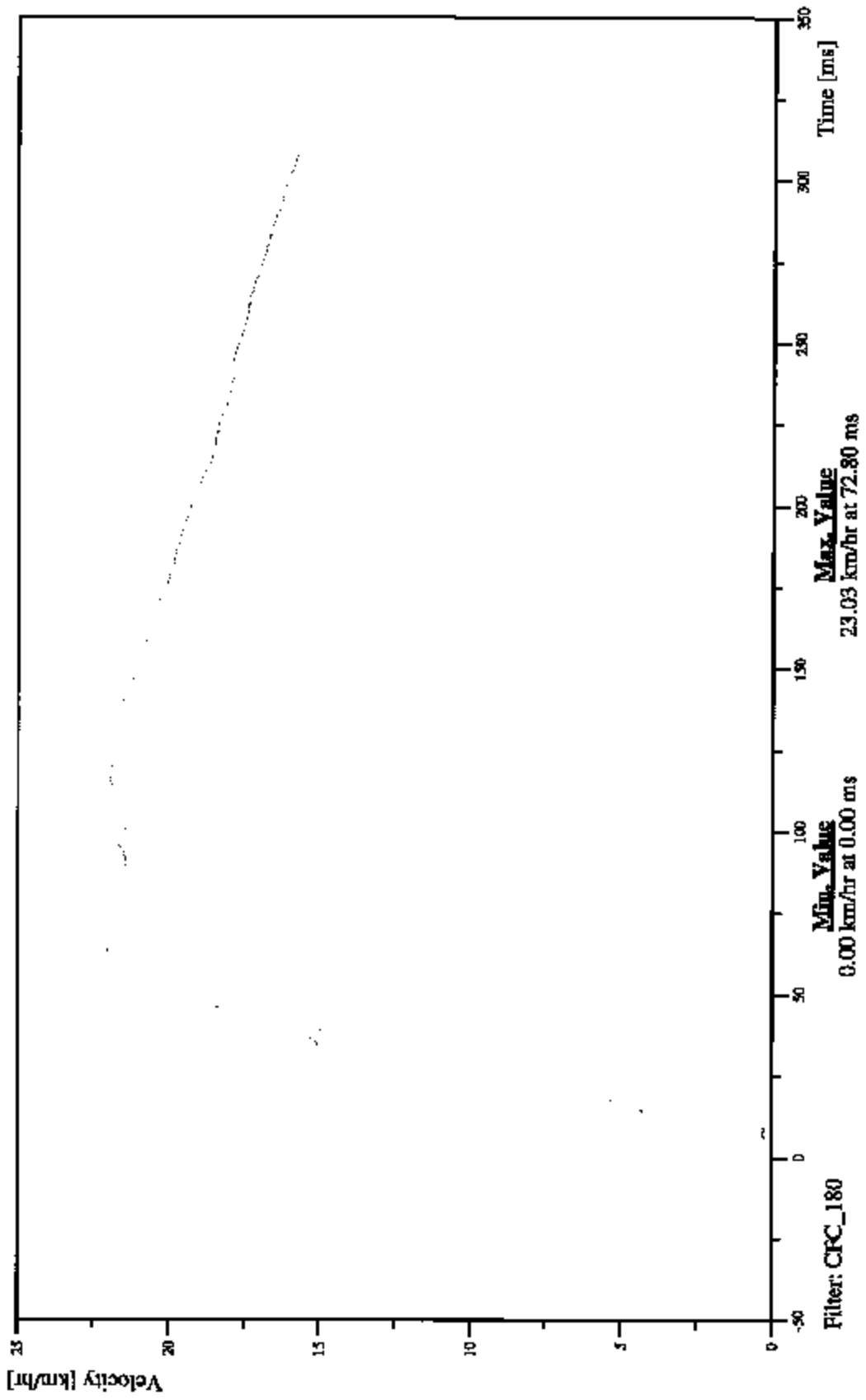


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
File: 04072005
Time: 11:01
VEHICLE CENTER OF GRAVITY (Y) VELOCITY VS TIME (#18)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

VCGYV1

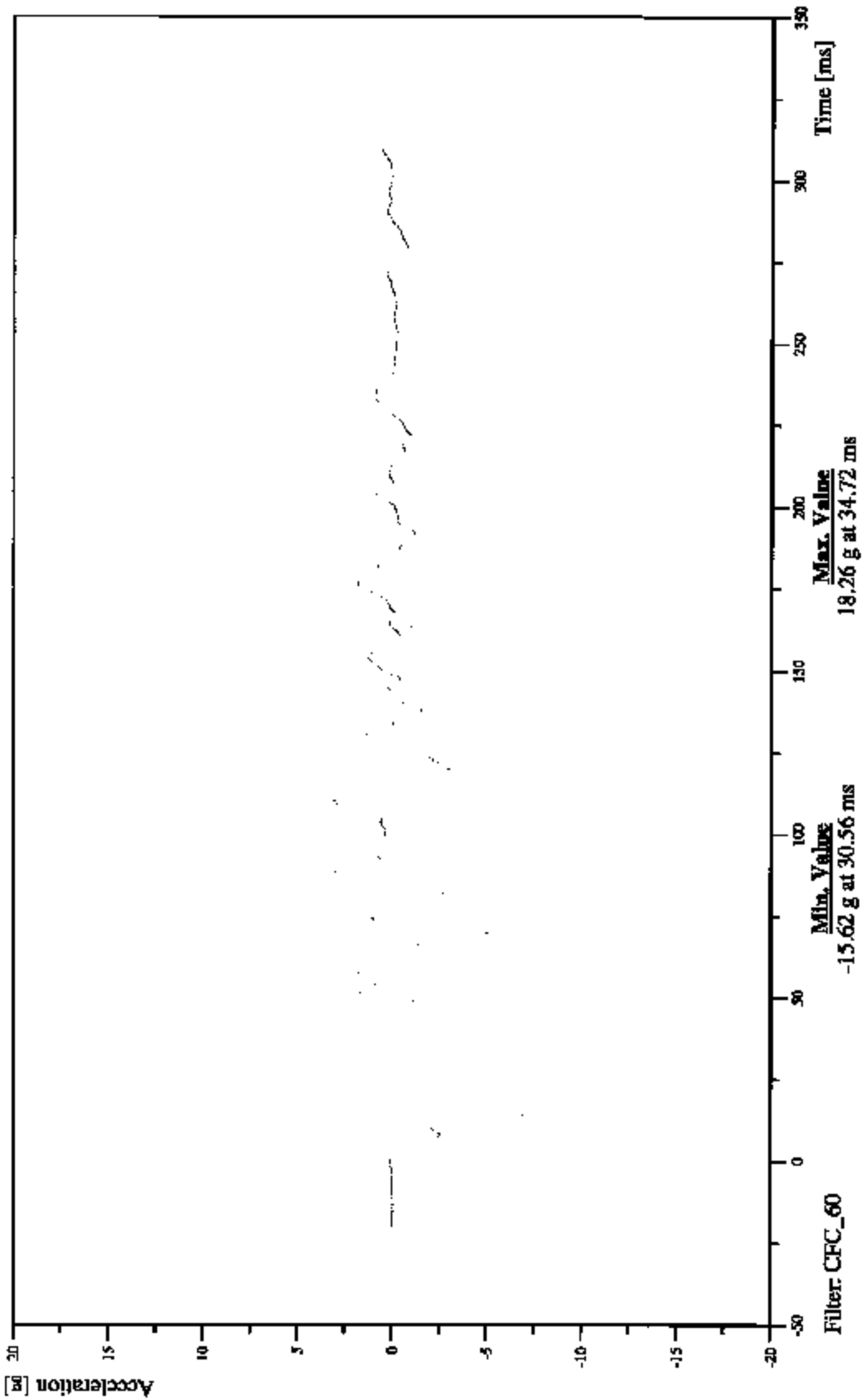


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 11:01
VEHICLE CENTER OF GRAVITY (Z) ACCELERATION VS TIME (#18)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

VCGZG1

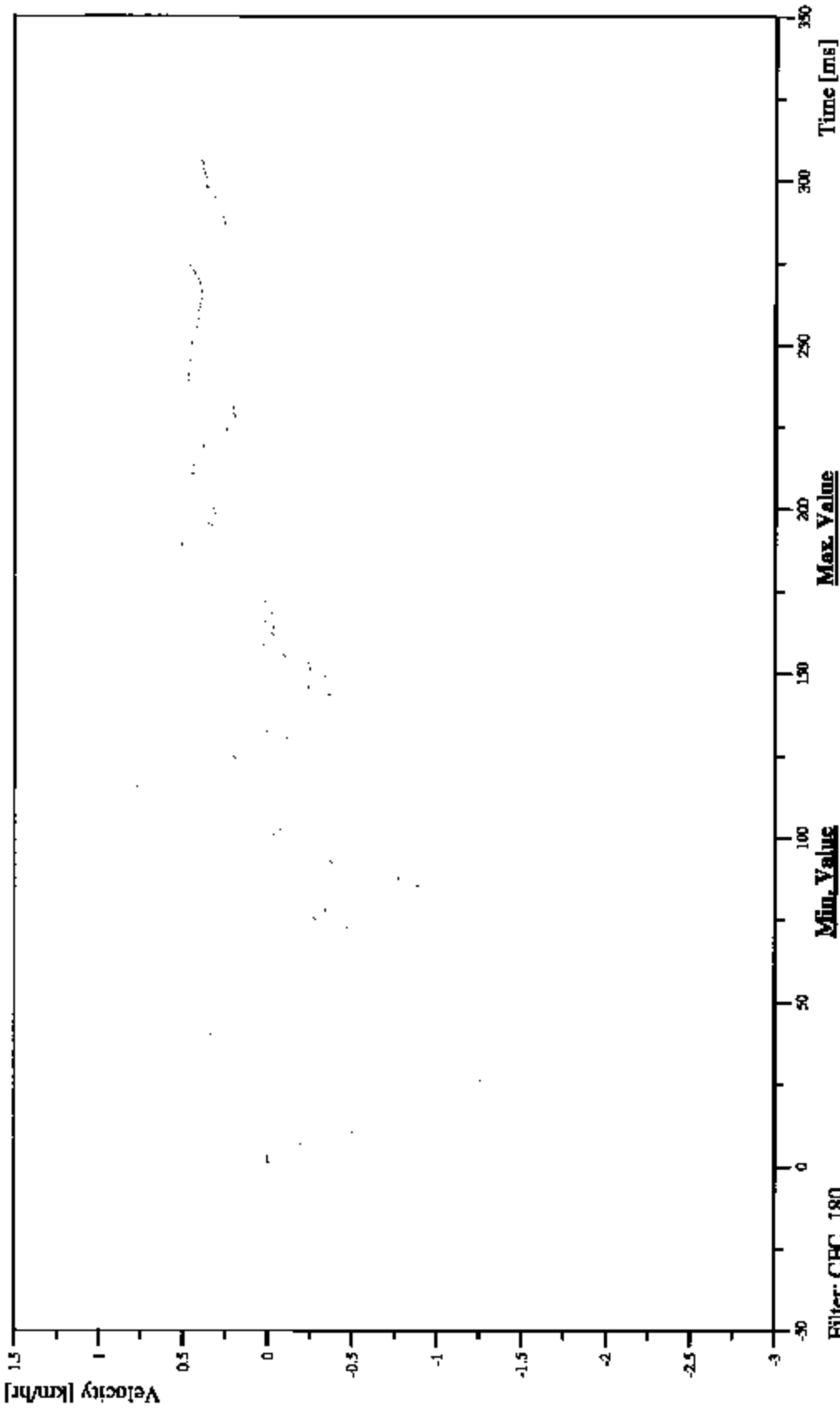


48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 04/07/2005
Time: 11:01
VEHICLE CENTER OF GRAVITY (Z) VELOCITY VS TIME (#18)

Customer: NHTSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

VCGZV1



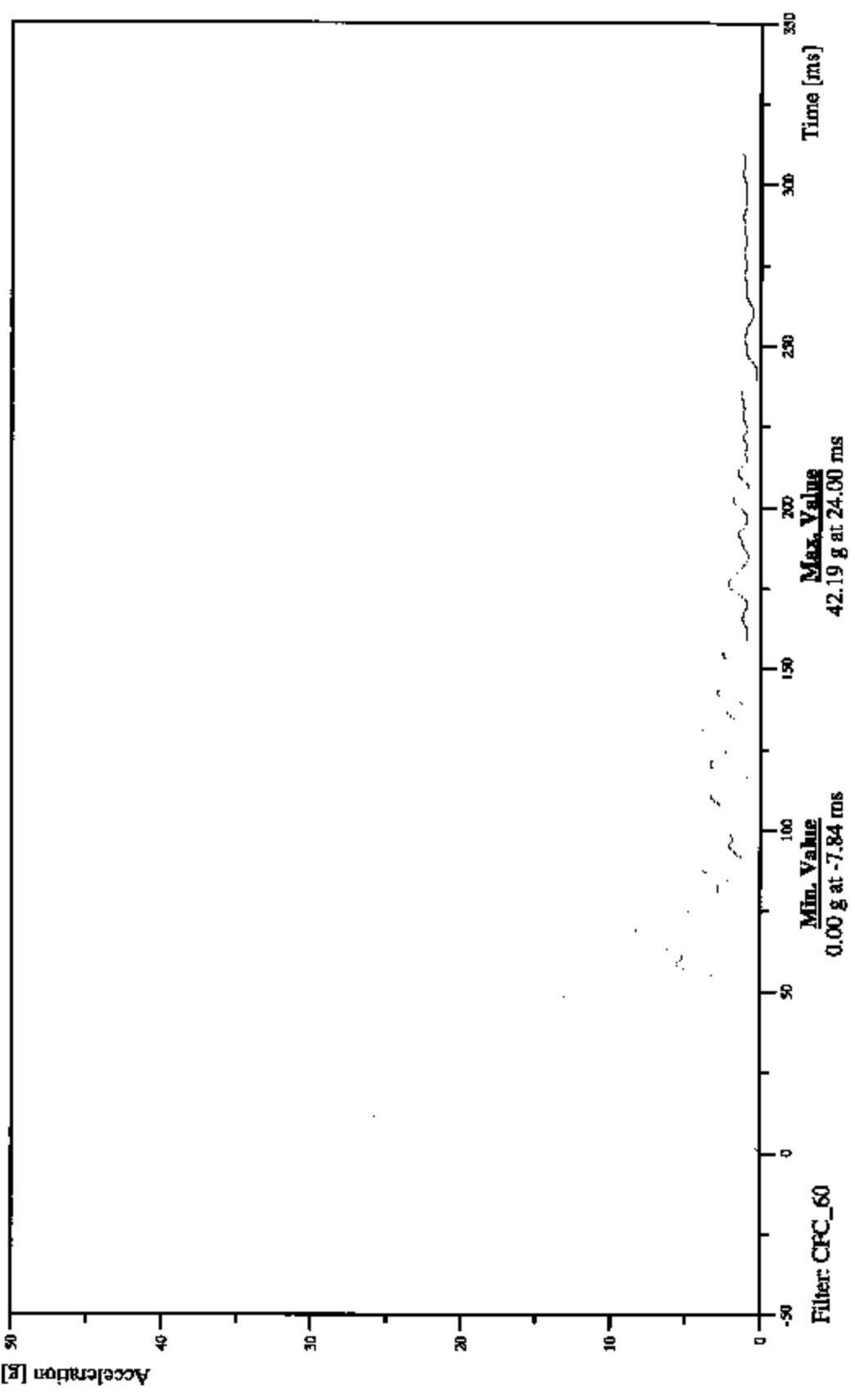
48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
Time: 04/07/2005
Time: 11:51

VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME (#18)

Customer: NH TSA
Test Number: C55500

TRC Inc. Test Lab: CTF
Test Number: 050413

VCCGRG1



MDB Instrumentation Plots
Acceleration Data - Filter Class 60
Integration Data - Filter Class 180

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

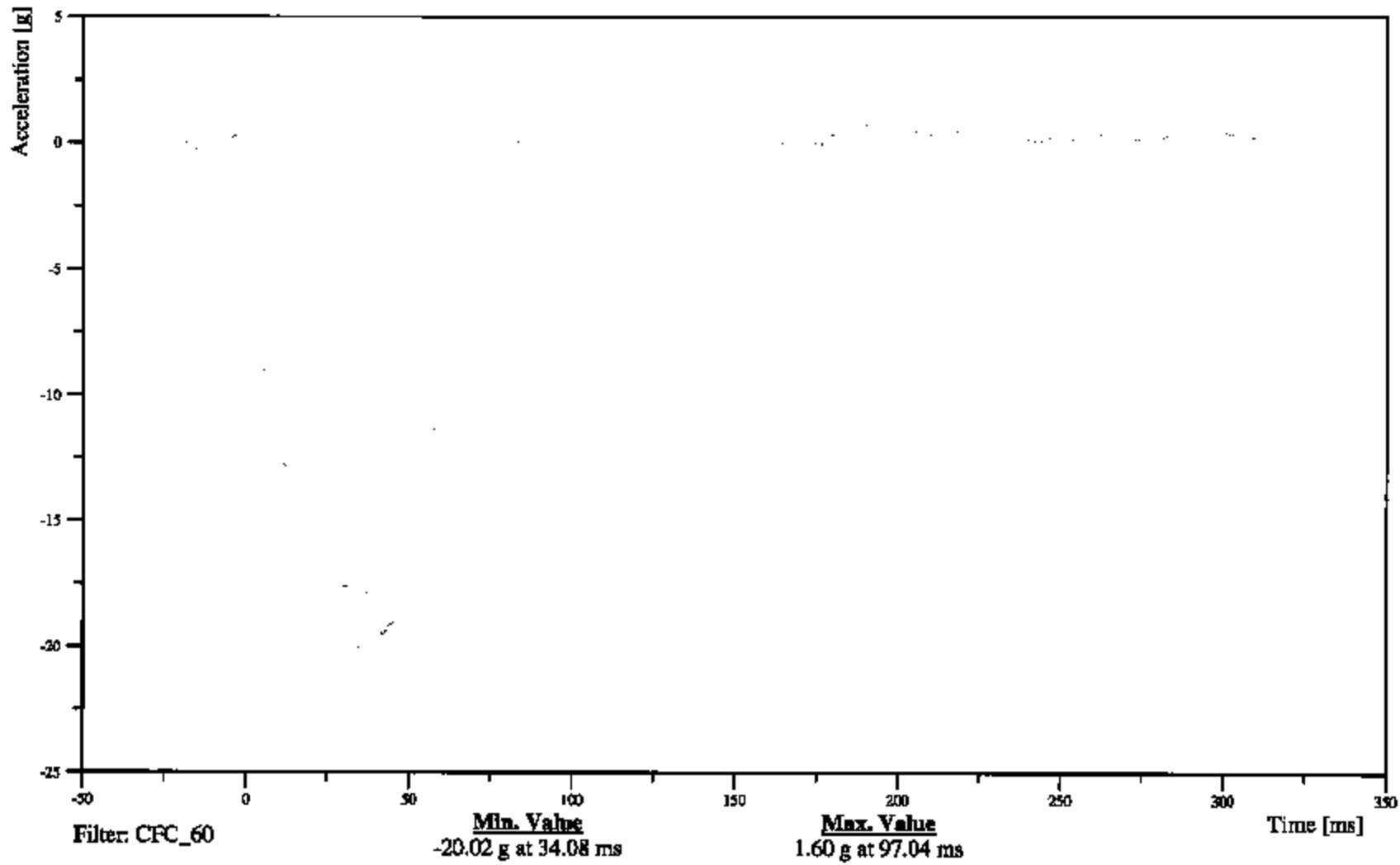
Date: 04/07/2005
Time: 11:01

MDB CENTER OF GRAVITY (X) ACCELERATION VS TIME (#1)

Customer: NHTSA
Test Number: C55500

BCGXG1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-85

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

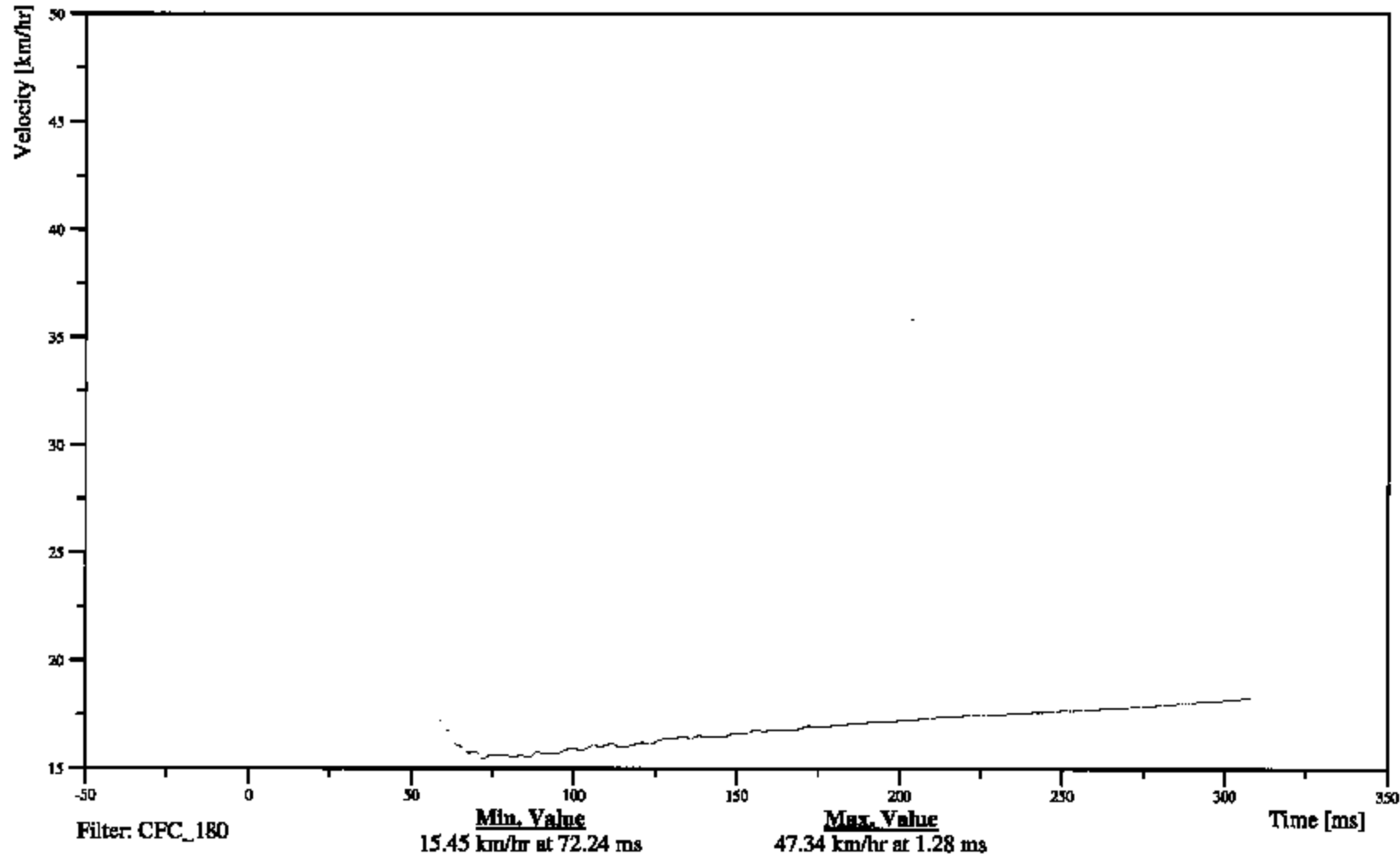
Date: 04/07/2005
Time: 11:01

MDB CENTER OF GRAVITY (X) VELOCITY VS TIME (#1)

Customer: NETSA
Test Number: C55500

BCGXV1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-86

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

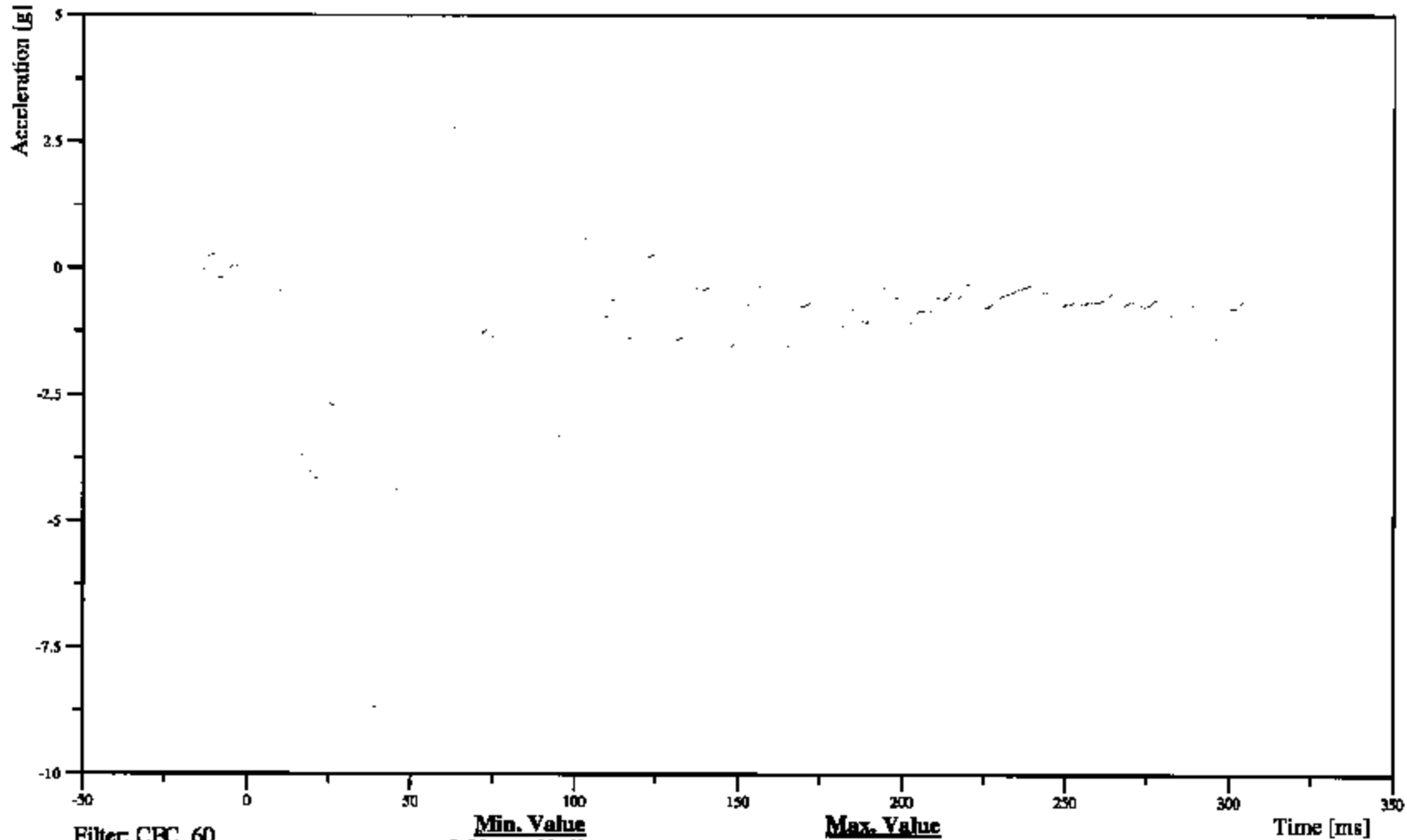
File: 041072005
Time: 11:01

MDB CENTER OF GRAVITY (Y) ACCELERATION VS TIME(#1)

Customer: NHTSA
Test Number: C55500

BCGYG1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-87

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

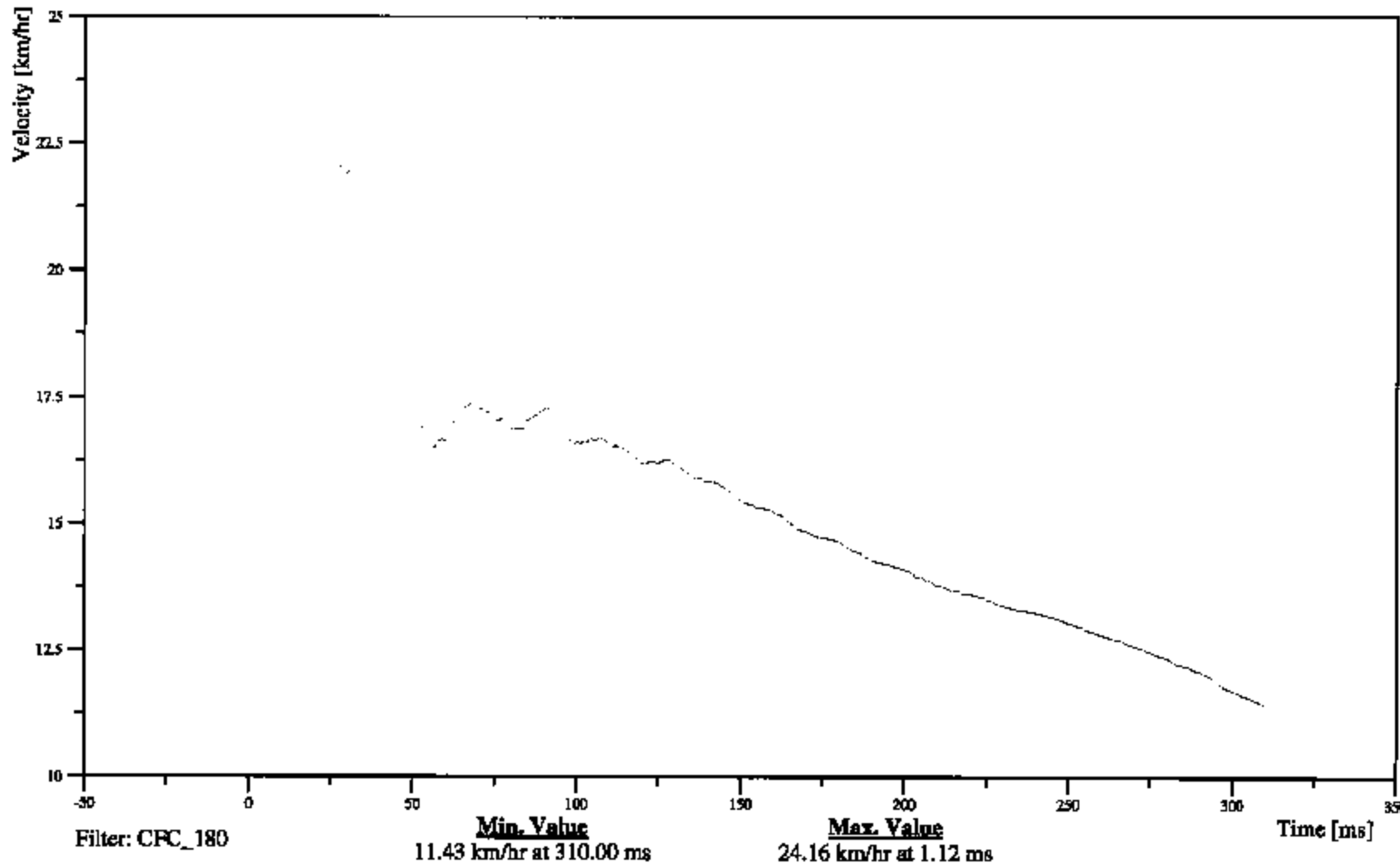
Date: 04/07/2005
Time: 11:01

MDB CENTER OF GRAVITY (Y) VELOCITY VS TIME(#1)

Customer: NHTSA
Test Number: C55500

BCGYV1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-88

050413

Filter: CPC_180

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Date: 04/07/2005

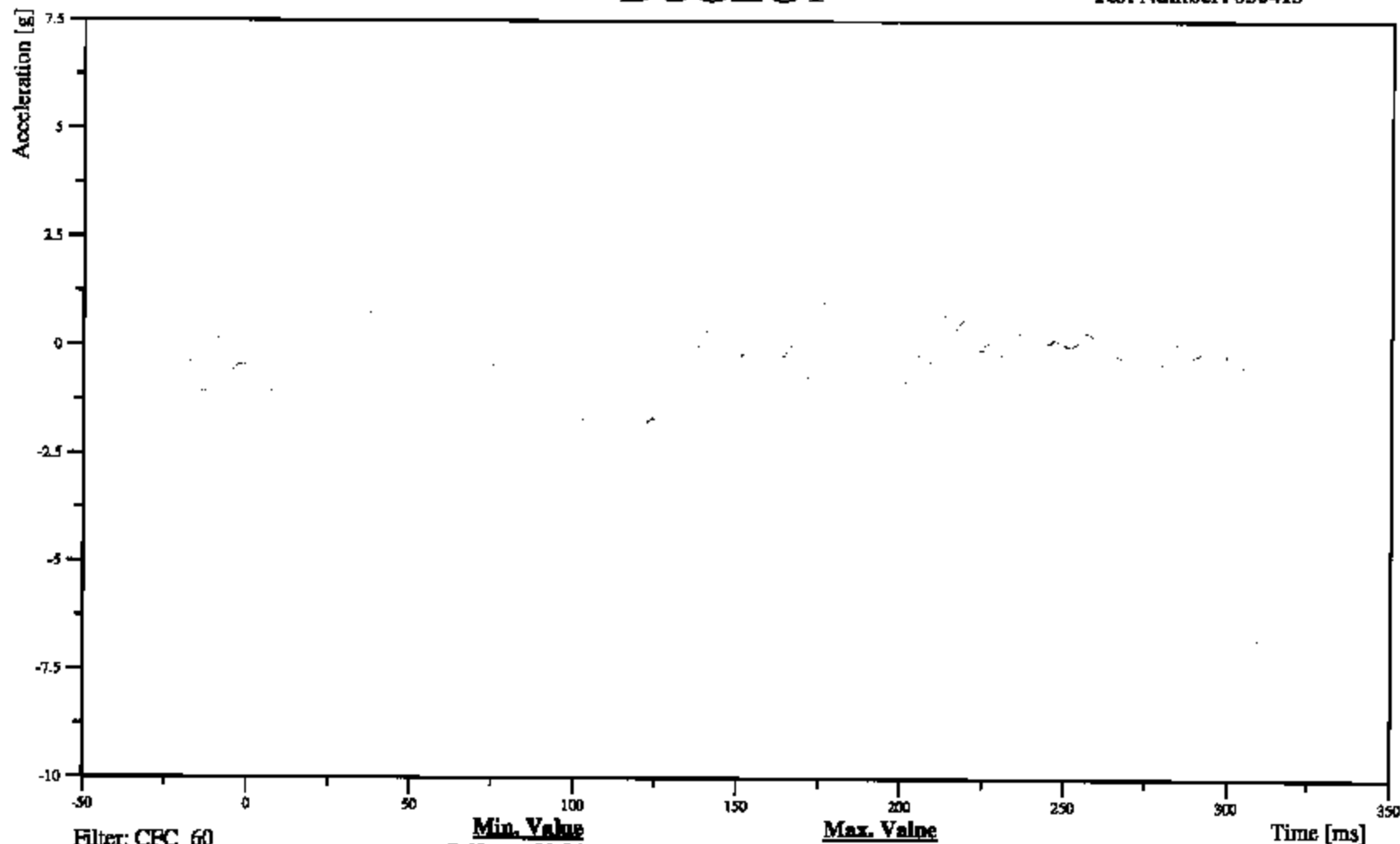
MDB CENTER OF GRAVITY (Z) ACCELERATION VS TIME(#1)

Time: 11:01

Customer: NHTSA
Test Number: C55500

BCGZG1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-89

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

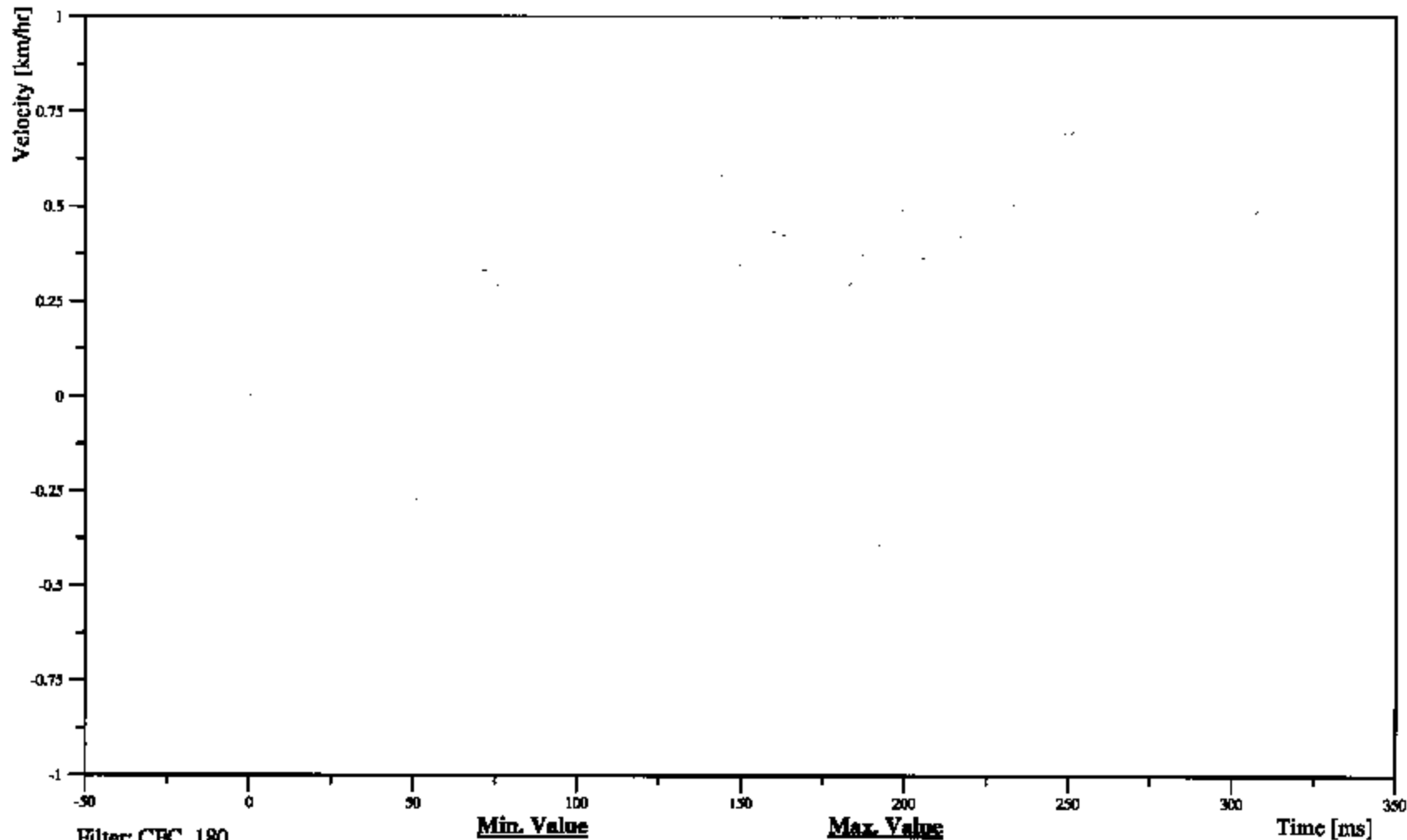
Date: 04/07/2005
Time: 11:01

MDB CENTER OF GRAVITY (Z) VELOCITY VS TIME(#1)

Customer: NHTSA
Test Number: C55500

BCGZV1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-90

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

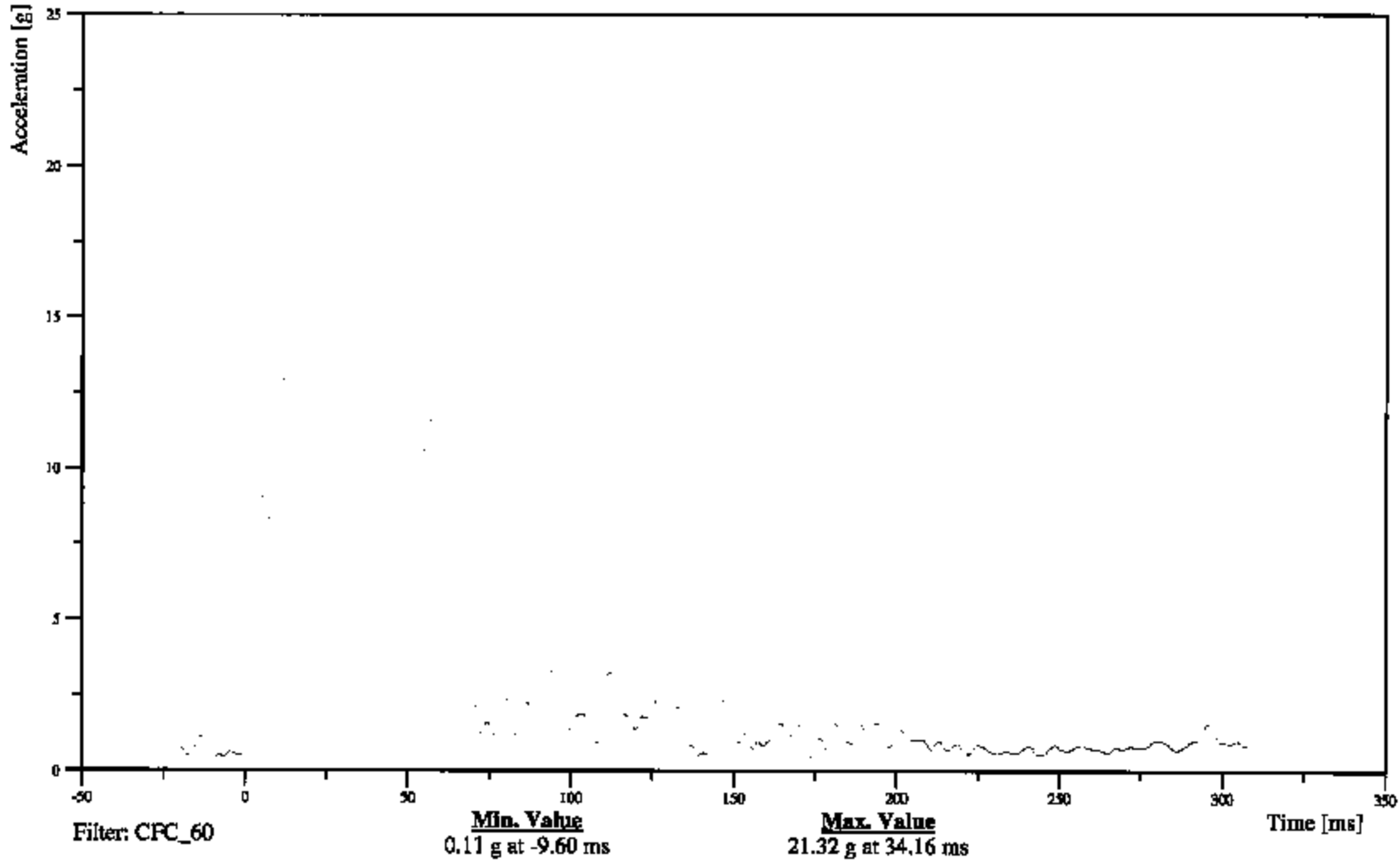
Date: 04/07/2005
Time: 11:01

MDB CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME(#1)

Customer: NHTSA
Test Number: C55500

BCGRG1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-91

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

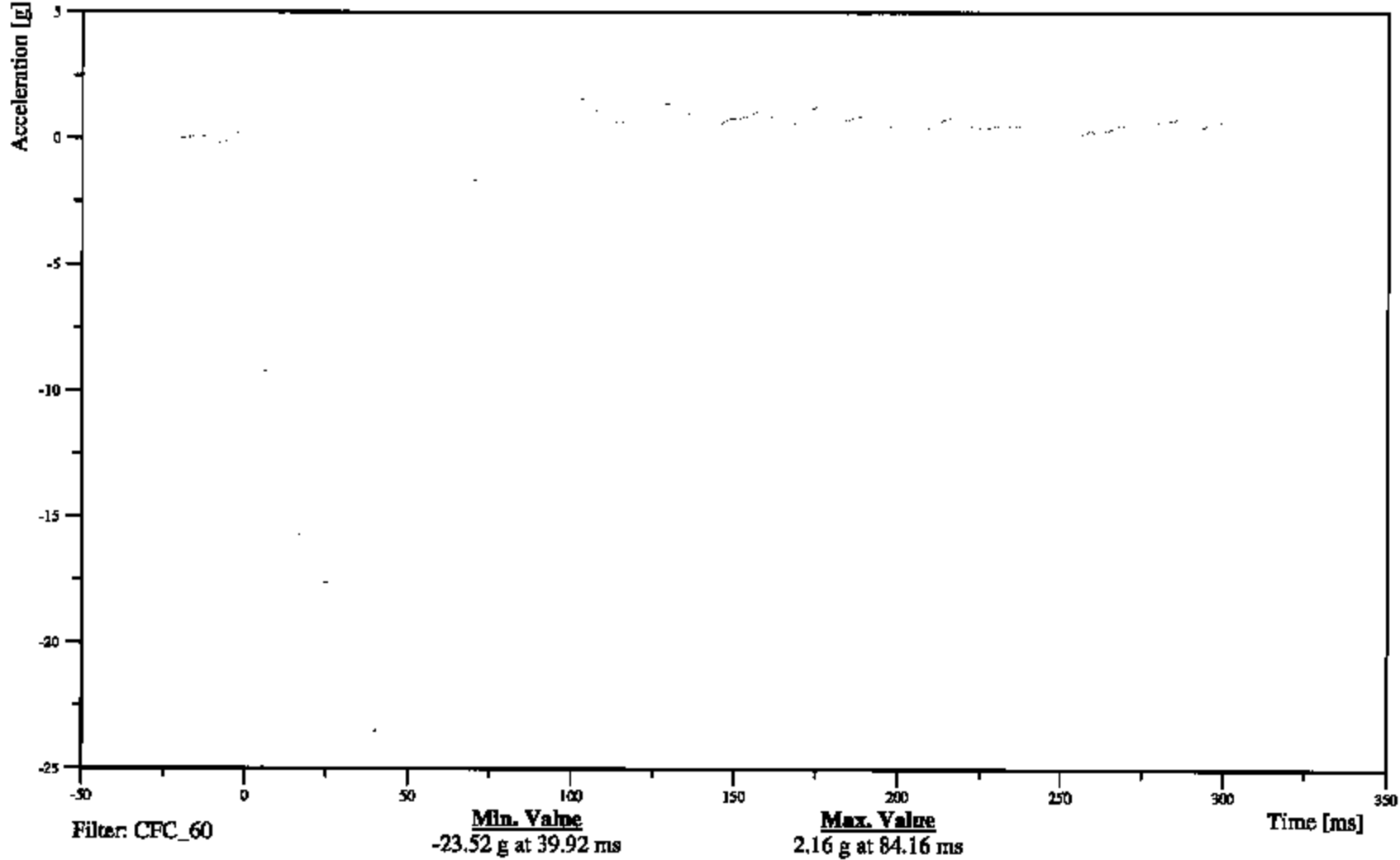
File: 04072005
Time: 11:01

MDB REAR (X) ACCELERATION VS TIME (#2)

Customer: NHTSA
Test Number: C55500

LRRXG1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-92

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

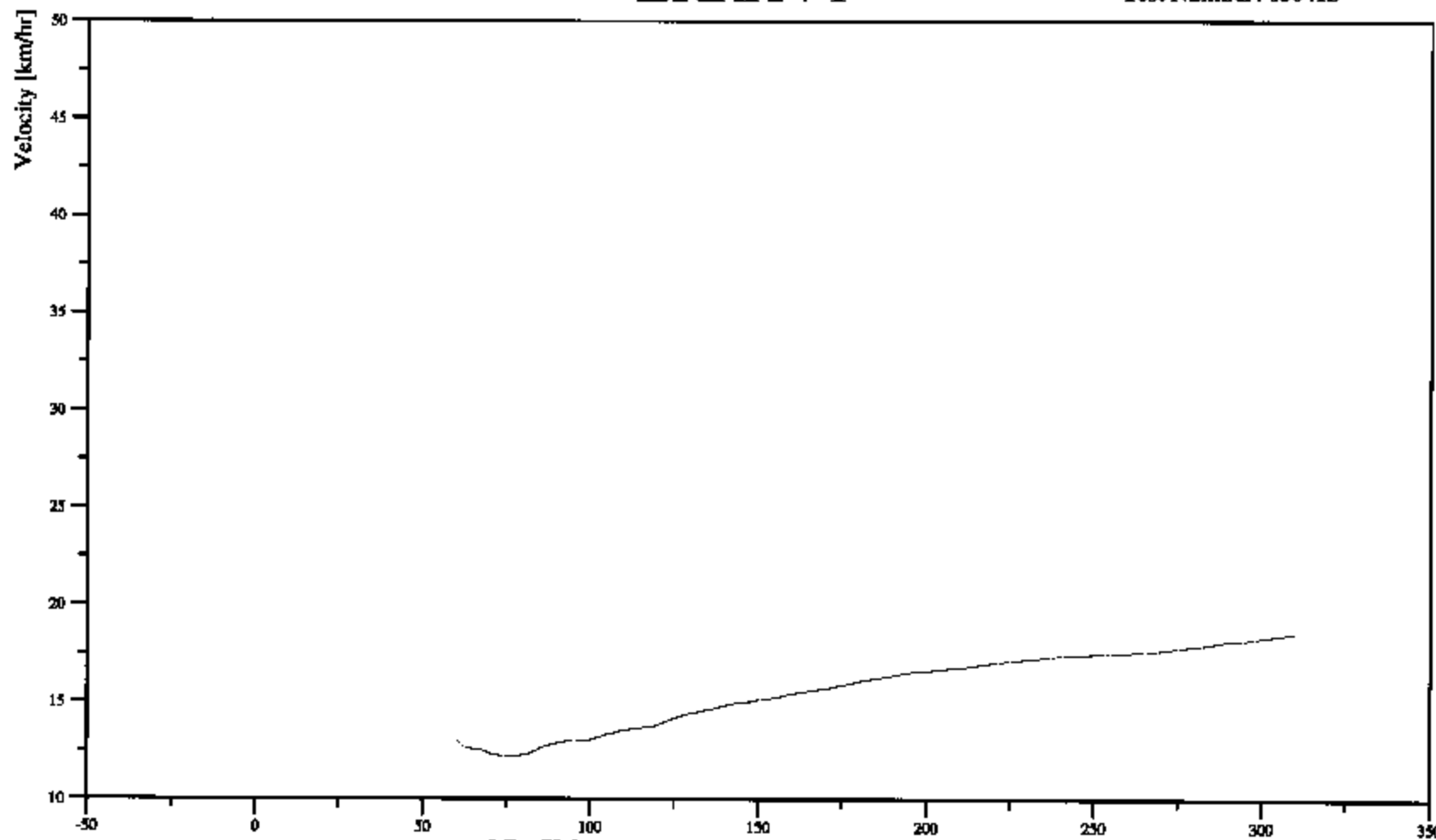
Date: 04/07/2005
Time: 11:01

MDB REAR (X) VELOCITY VS TIME (#2)

Customer: NHTSA
Test Number: C55500

LRRXV1

TRC Inc. Test Lab: CTF
Test Number: 050413



Filter: CPC_180

Min. Value
12.16 km/hr at 75.44 ms

Max. Value
47.33 km/hr at 0.80 ms

Time [ms]

B-93

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Date: 04/07/2005

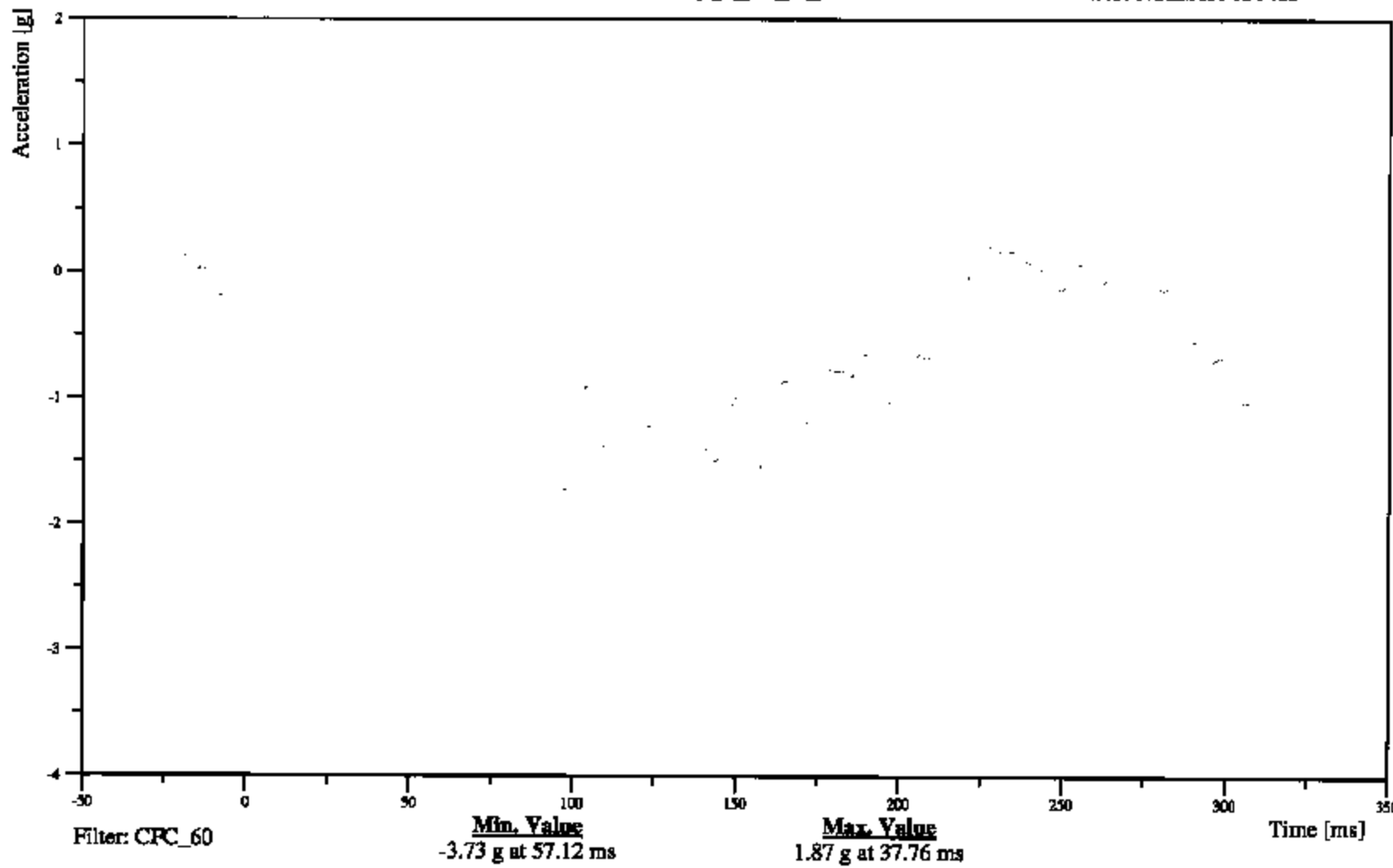
MDB REAR (Y) ACCELERATION VS TIME (#2)

Time: 11:01

Customer: NHTSA
Test Number: C55500

LRRYG1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-94

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Date: 04/07/2005

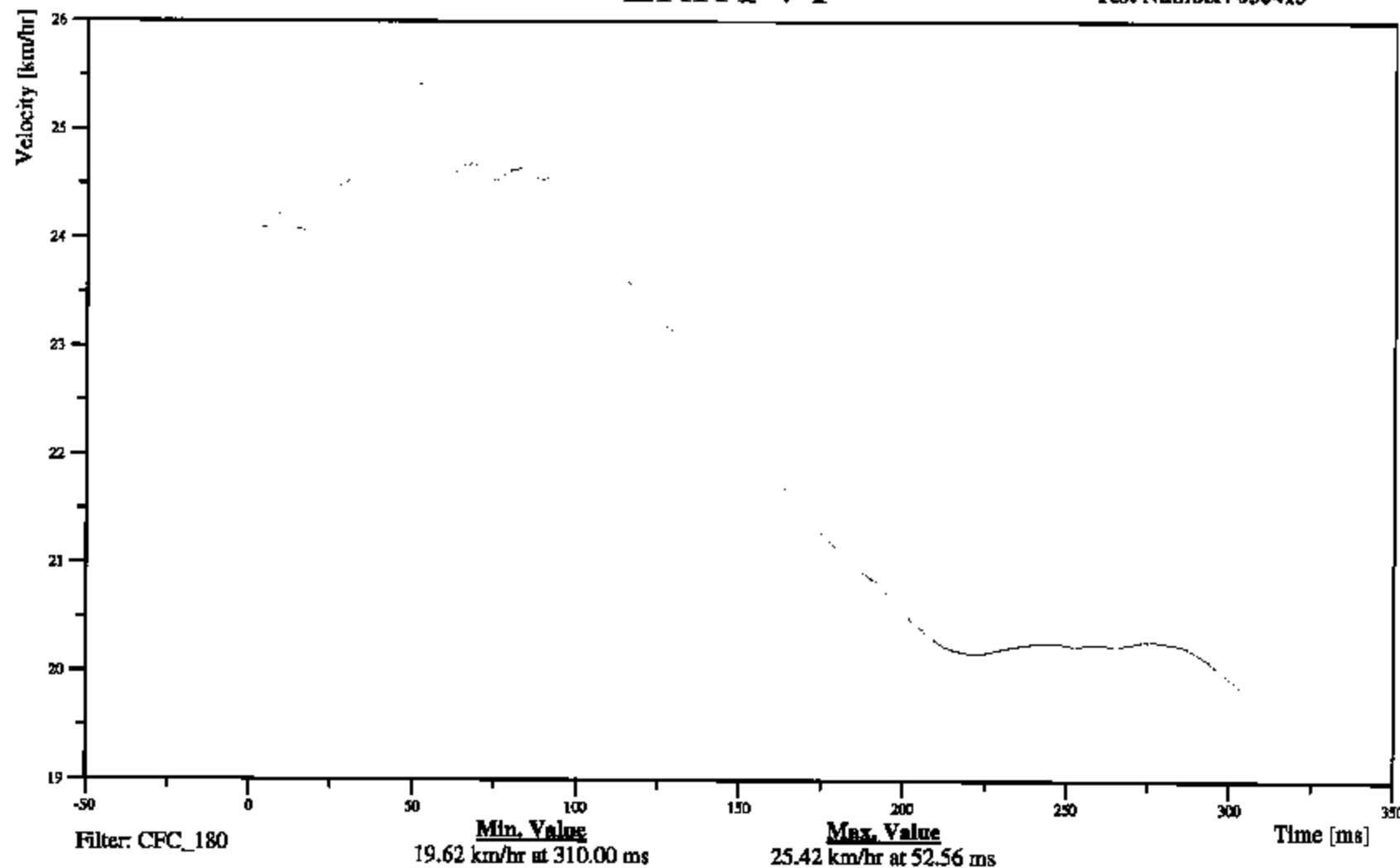
MDB REAR (Y) VELOCITY VS TIME (#2)

Time: 11:01

Customer: NHTSA
Test Number: C55500

LRRYV1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-95

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Date: 04/07/2005

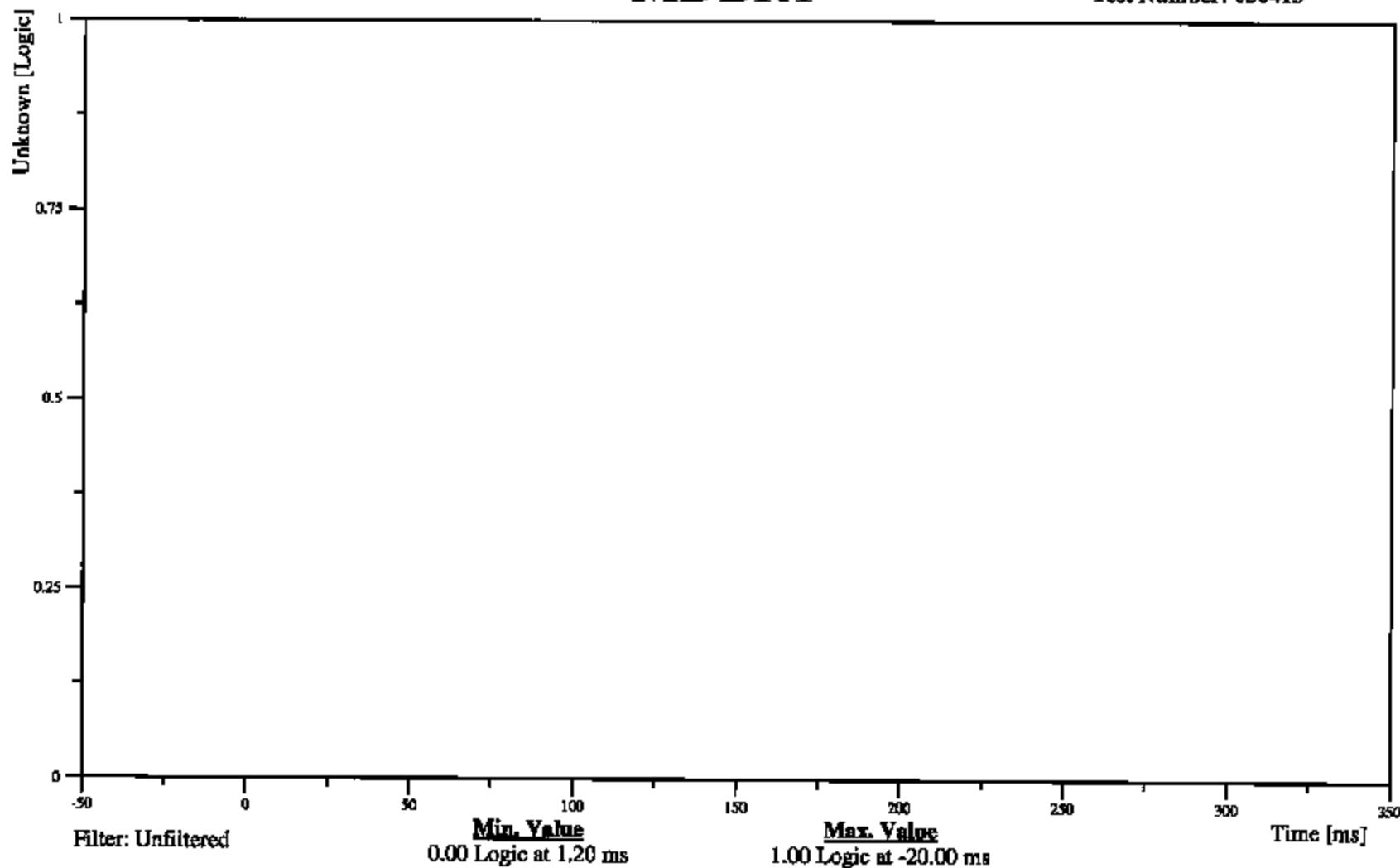
MDB RIGHT CONTACT SWITCH

Time: 11:01

Customer: NHTSA
Test Number: C55500

MDBR1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-96

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

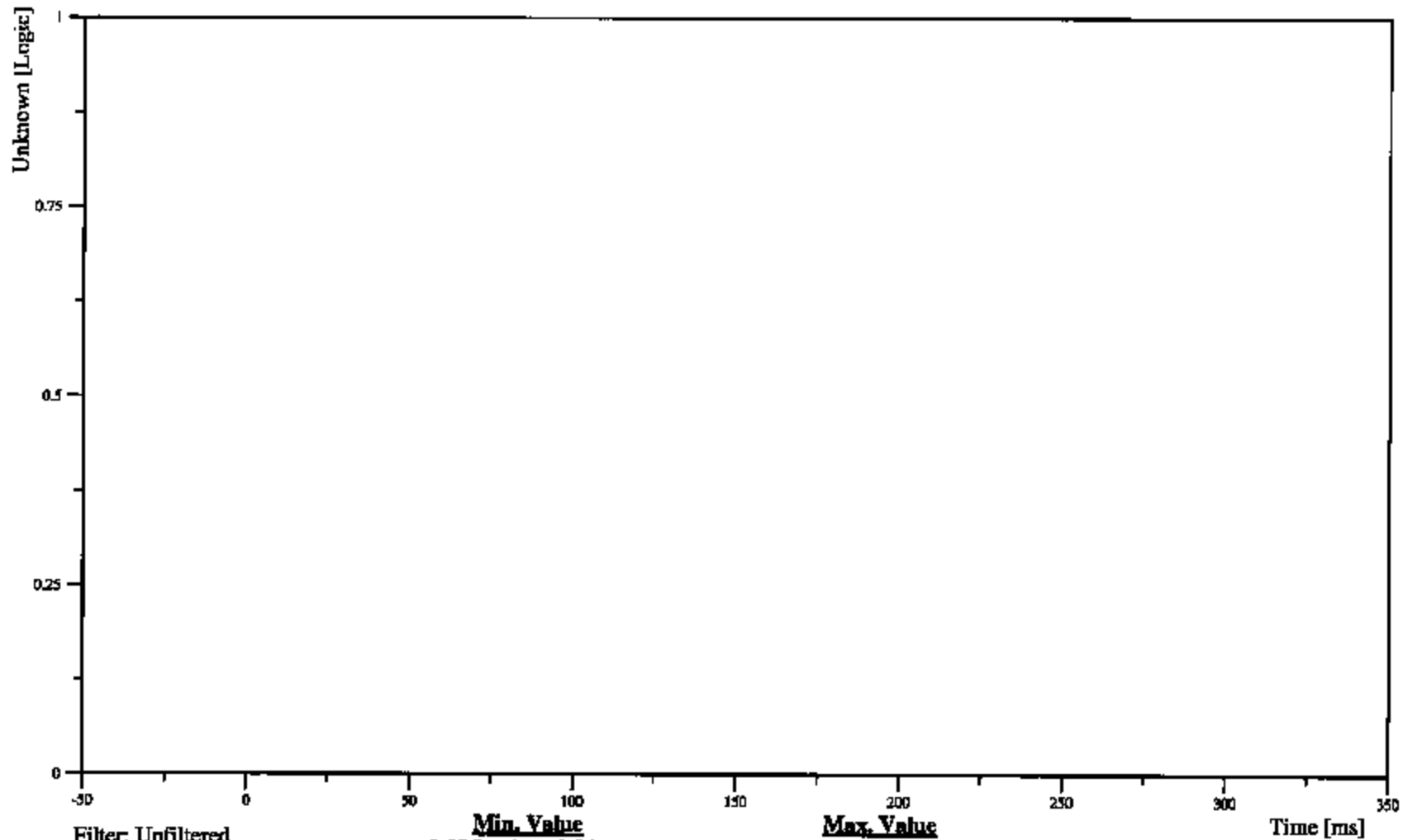
Date: 04/07/2005
Time: 11:01

MDB LEFT CONTACT SWITCH

Customer: NHTSA
Test Number: C55500

MDBL1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-97

050413

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

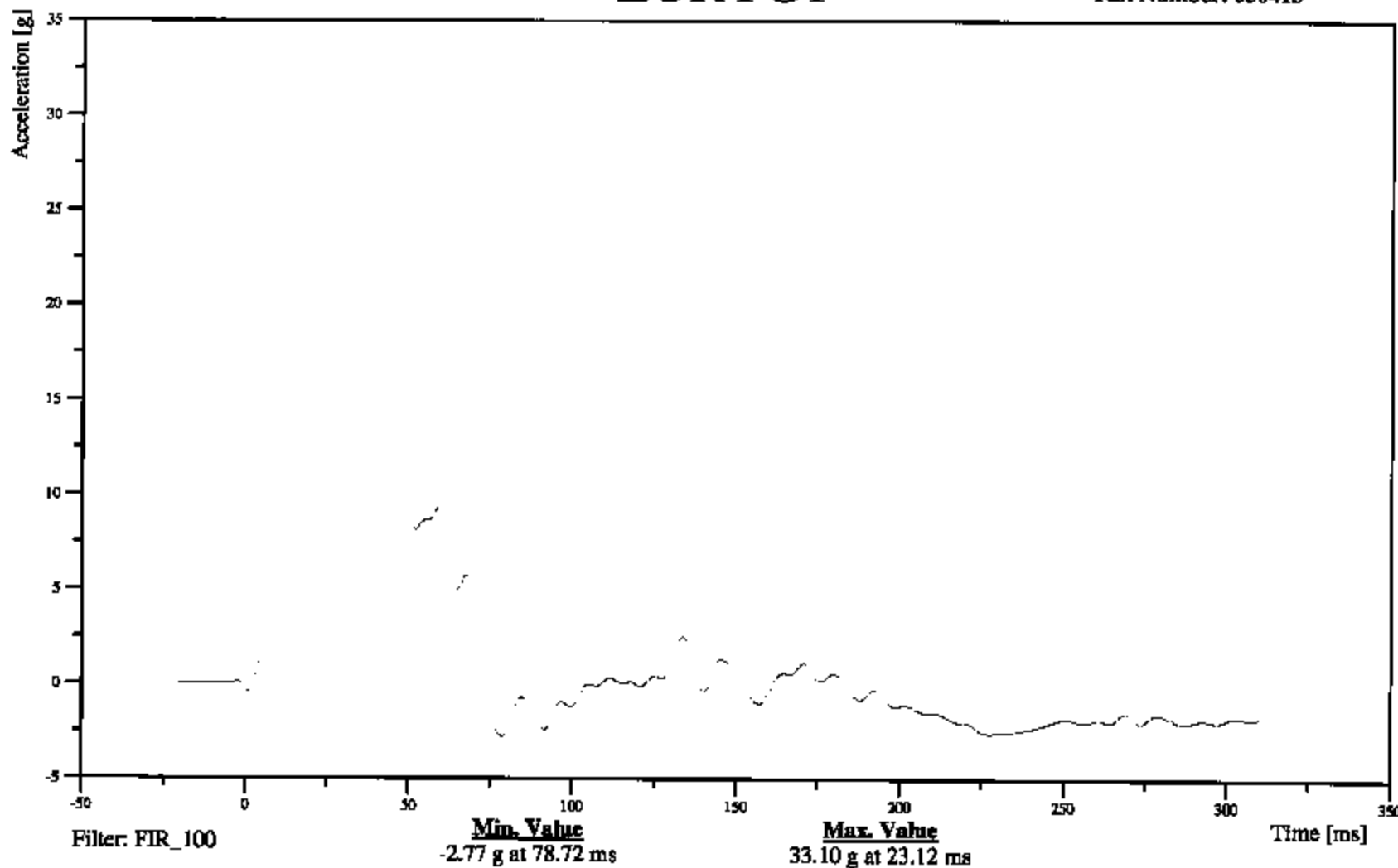
Date: 04/07/2005
Time: 11:01

DRIVER UPPER RIB (Y) ACCELERATION VS TIME

Customer: NHTSA
Test Number: C55500

LURYG1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-99

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Date: 04/07/2005

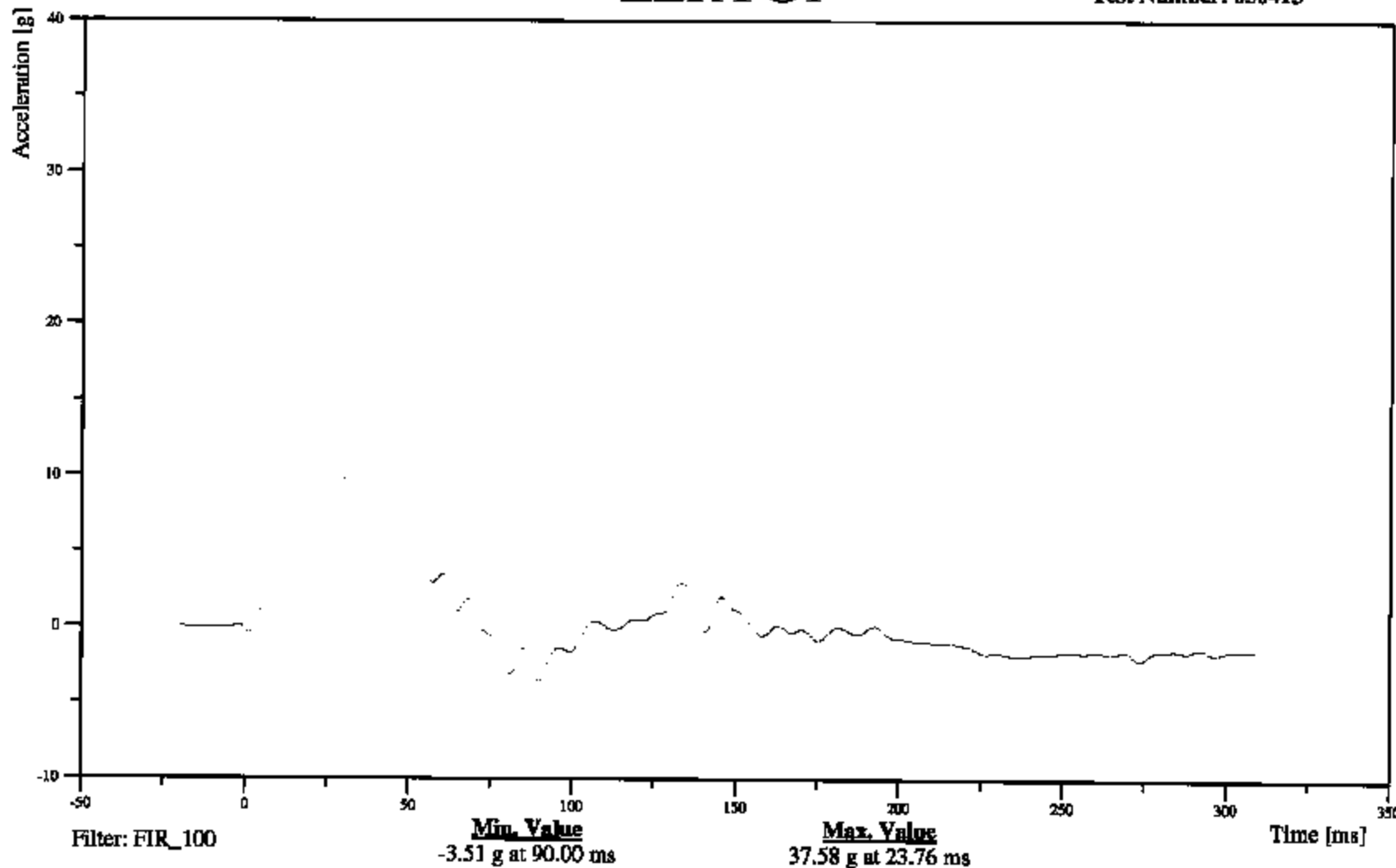
DRIVER LOWER RIB (Y) ACCELERATION VS TIME

Time: 11:01

Customer: NHTSA
Test Number: C55500

LLRYG1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-100

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Date: 04/07/2005

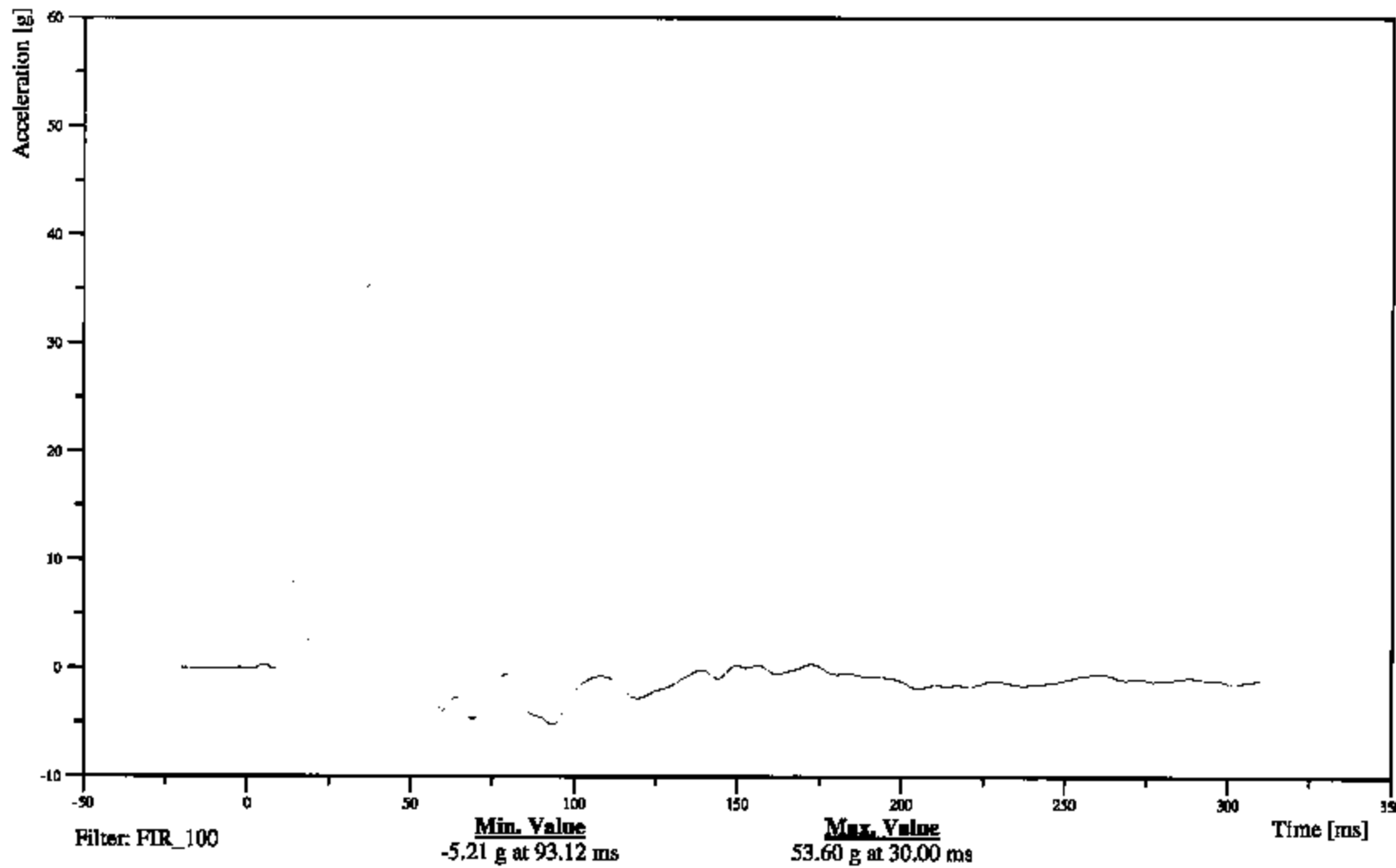
DRIVER LOWER SPINE (Y) ACCELERATION VS TIME

Time: 11:01

Customer: NHTSA
Test Number: C55500

T12YG1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-101

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

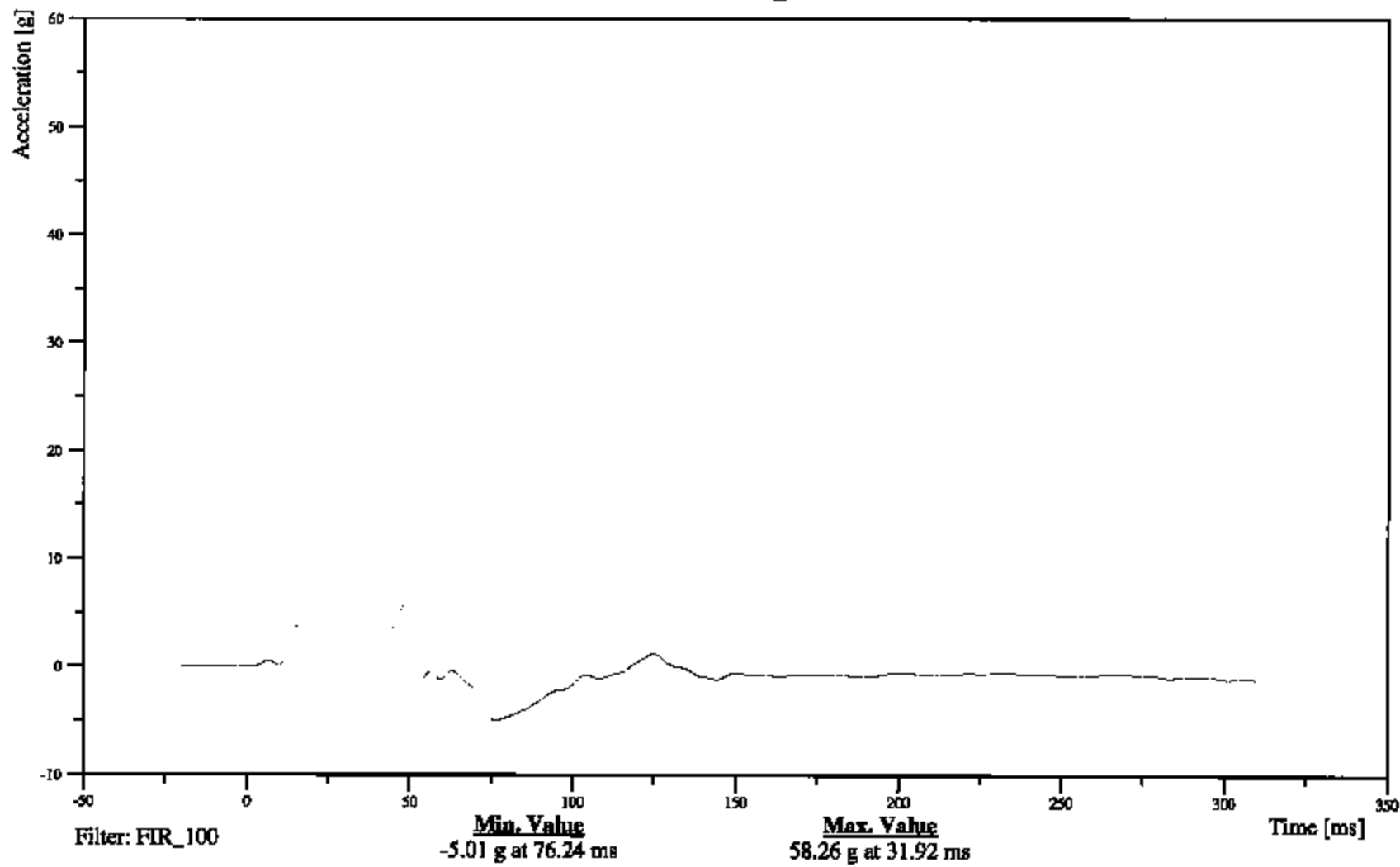
Date: 04/07/2005
Time: 11:01

DRIVER PELVIC (Y) ACCELERATION VS TIME

Customer: NHTSA
Test Number: C55500

PEVYG1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-102

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Date: 04/07/2005

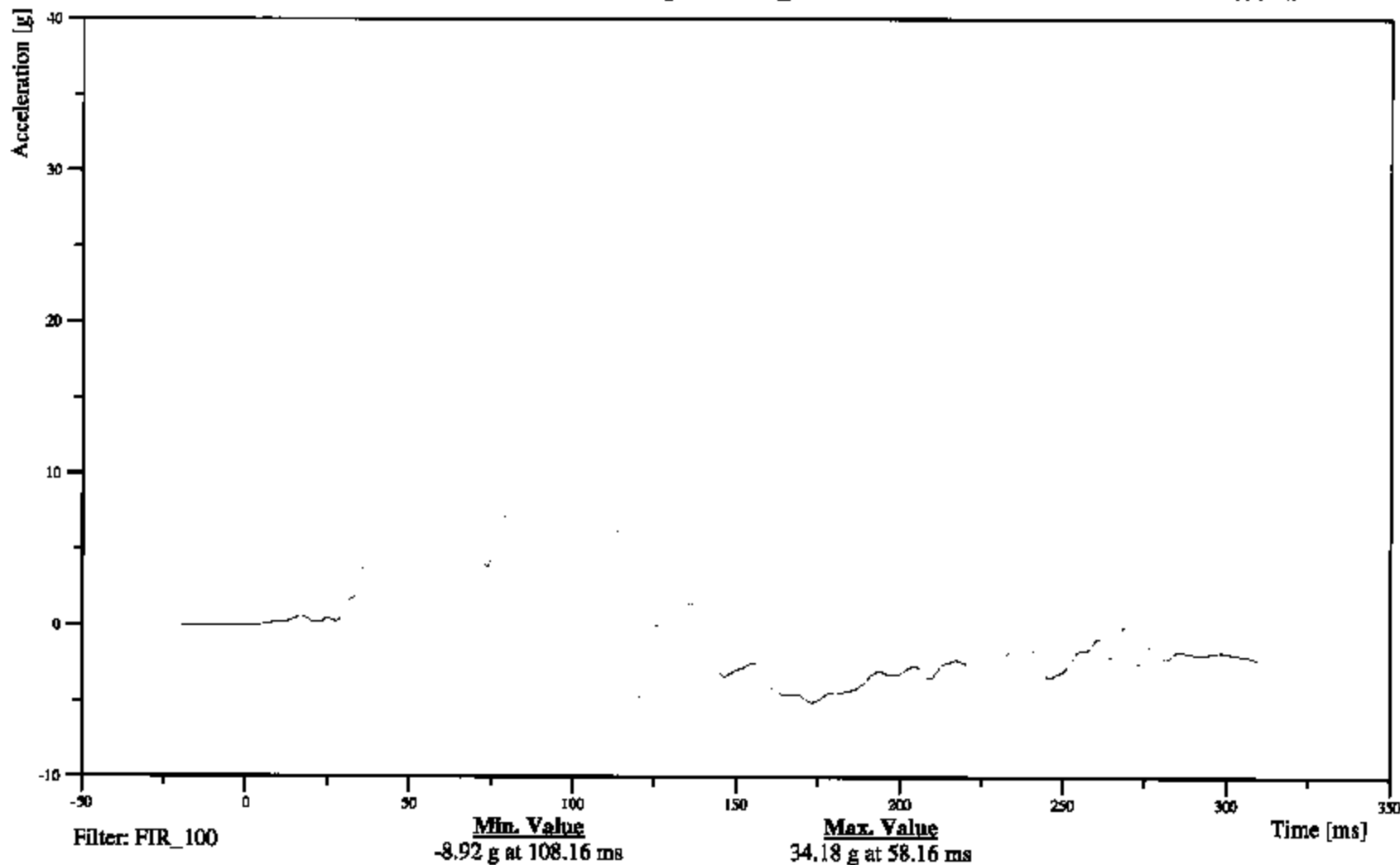
PASSENGER UPPER RIB (Y) ACCELERATION VS TIME

Time: 11:01

Customer: NHTSA
Test Number: C55500

LURYG4

TRC Inc. Test Lab: CTF
Test Number: 050413



B-103

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

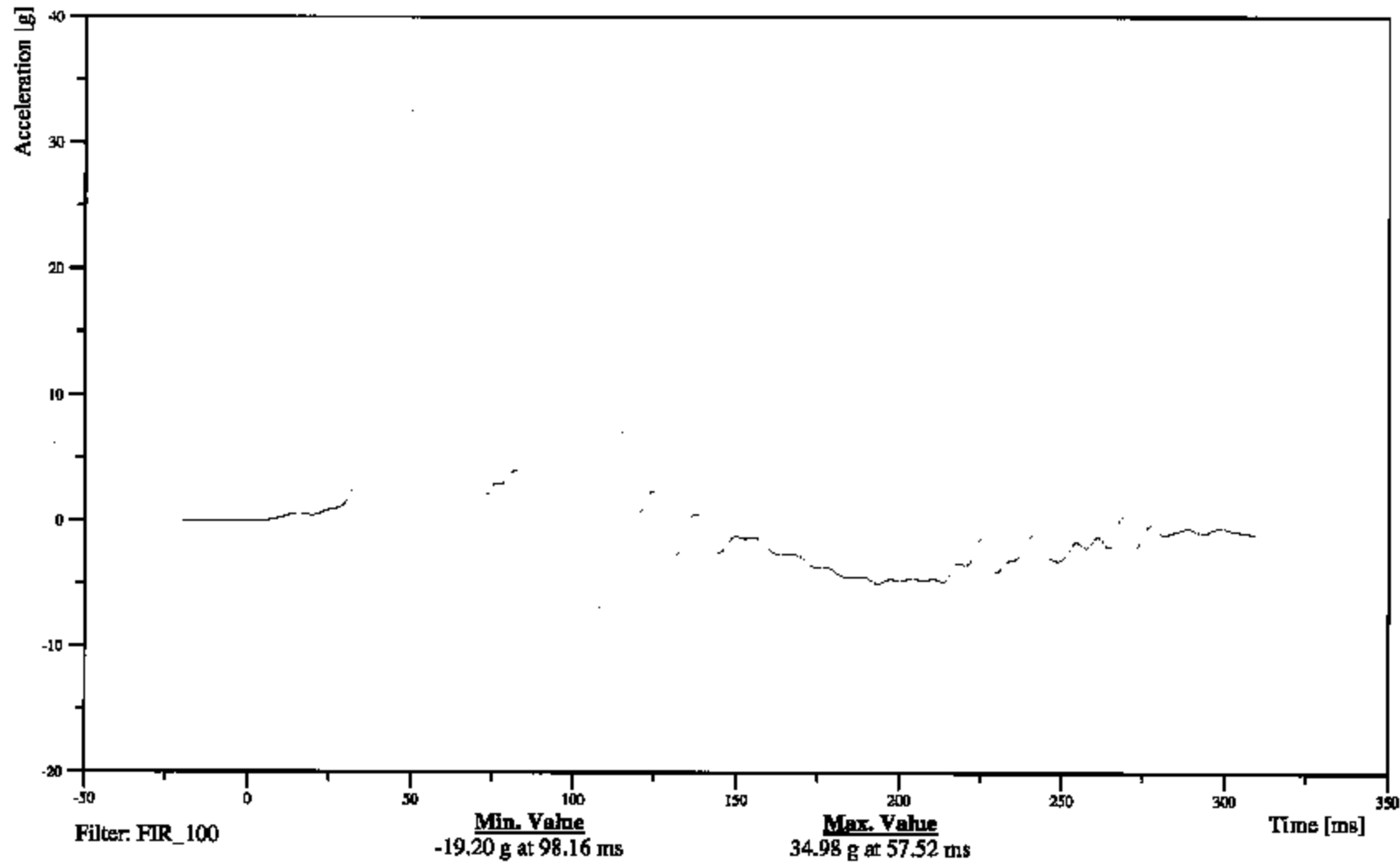
Date: 04/07/2008
Time: 11:01

PASSENGER LOWER RIB (Y) ACCELERATION VS TIME

Customer: NHTSA
Test Number: C55500

LLRYG4

TRC Inc. Test Lab: CTF
Test Number: 050413



B-104

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Date: 04/07/2005

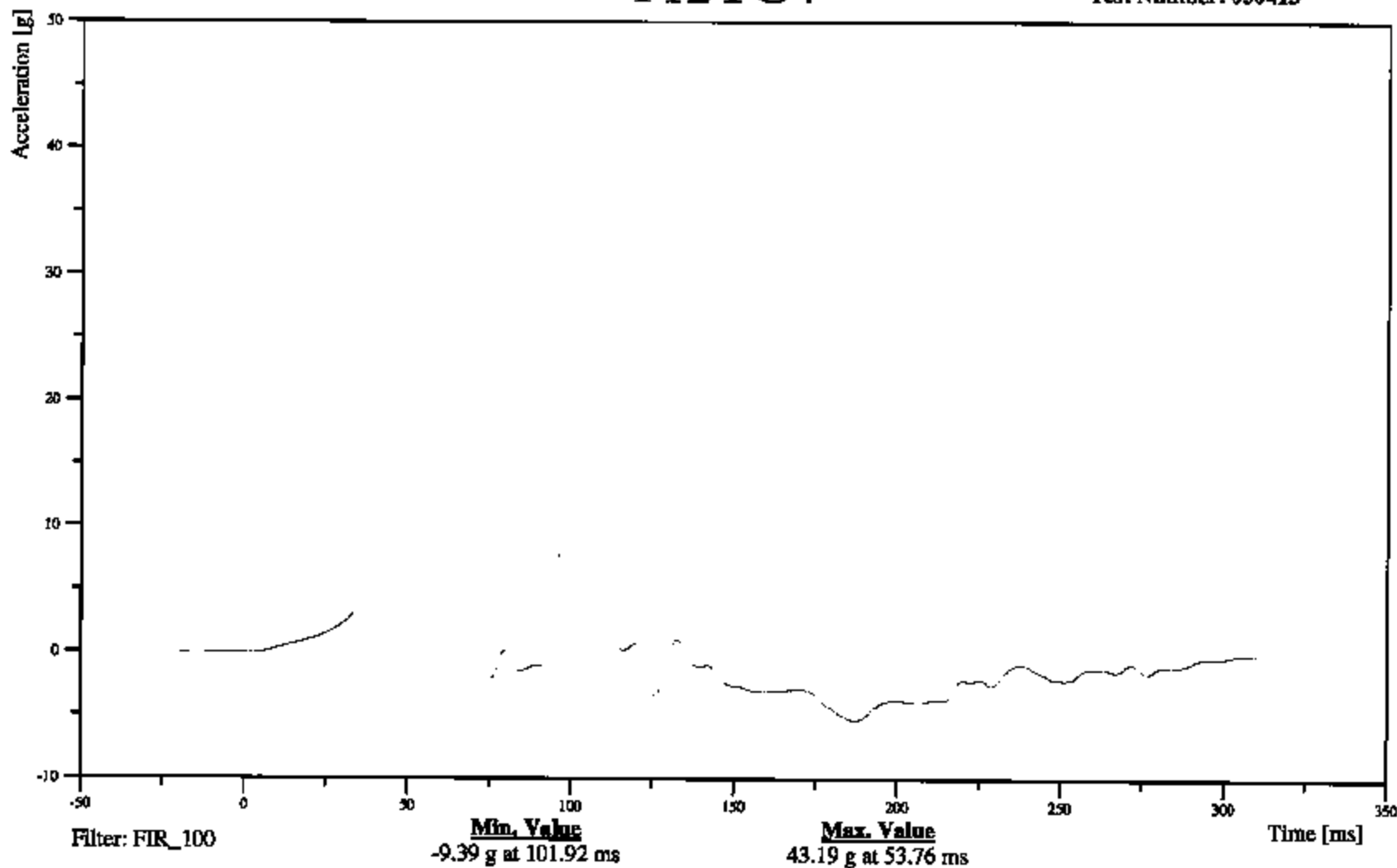
PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME

Time: 11:01

Customer: NHTSA
Test Number: C55500

T12YG4

TRC Inc. Test Lab: CTF
Test Number: 050413



B-105

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

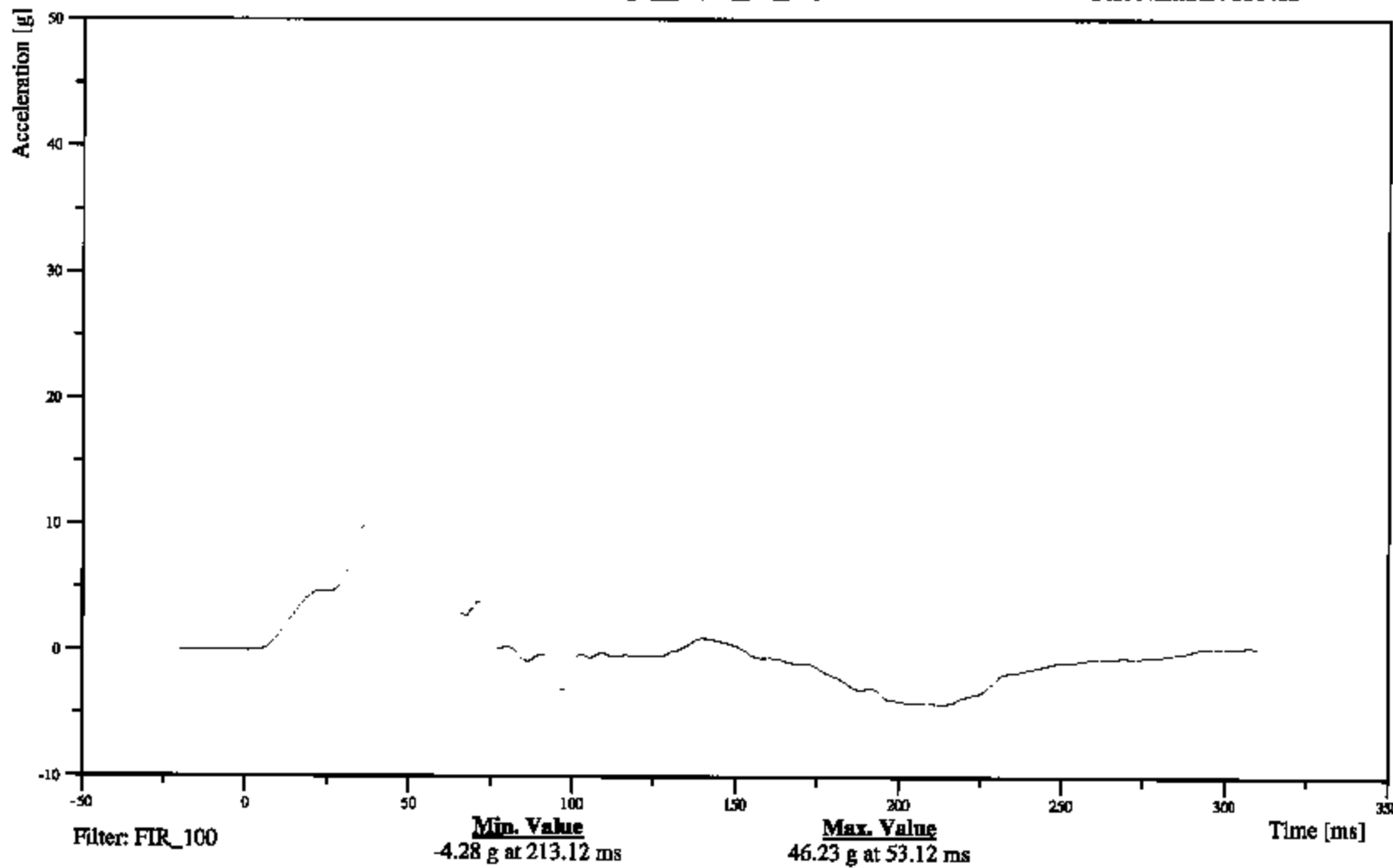
Date: 04/07/2005
Time: 11:01

PASSENGER PELVIC (Y) ACCELERATION VS TIME

Customer: NHTSA
Test Number: C55500

PEVYG4

TRC Inc. Test Lab: CTF
Test Number: 050413



B-106

050413

Driver and Passenger Dummy Instrumentation Plots
Acceleration Data - FIR Filtered - Redundant

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

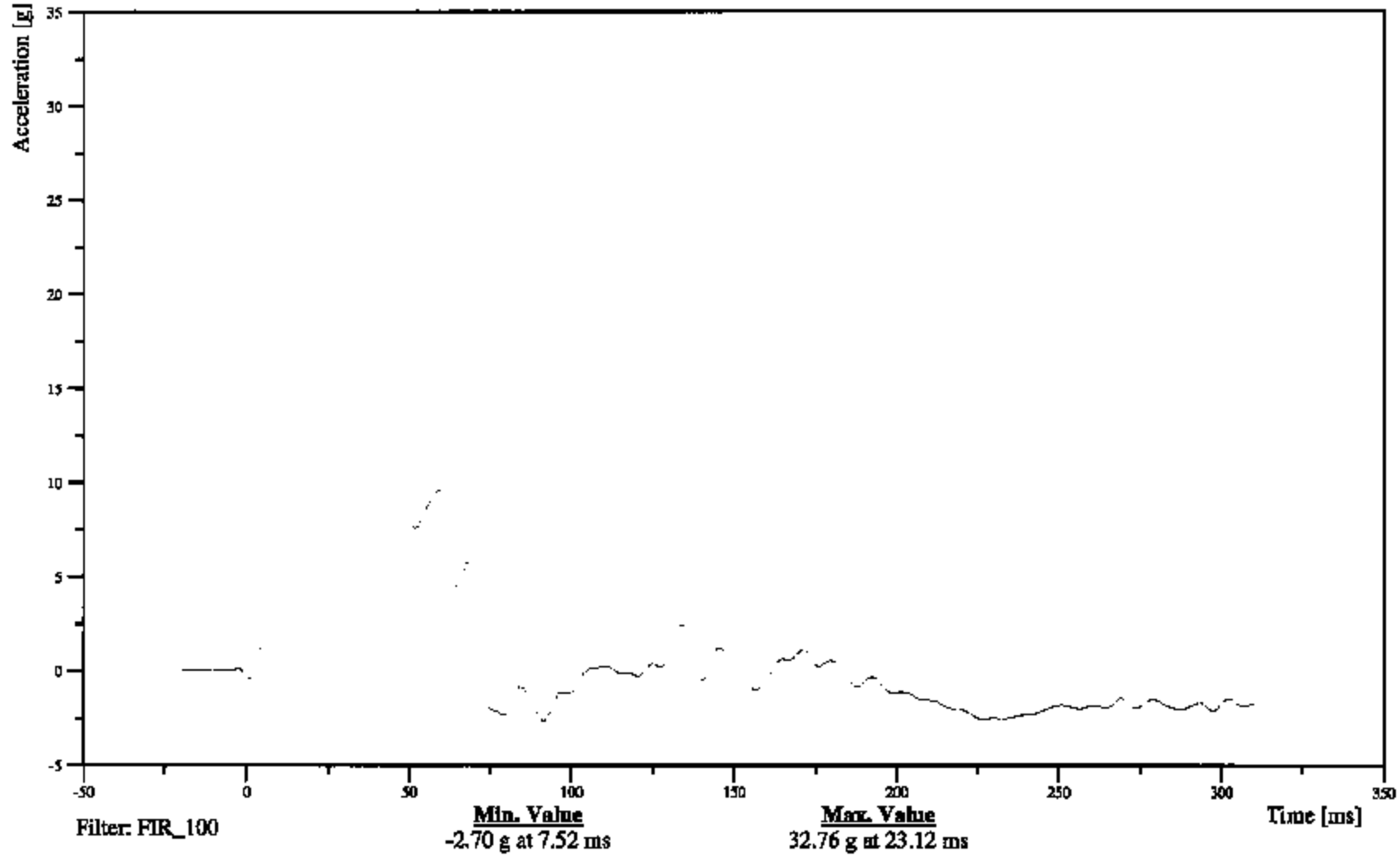
Date: 04/07/2005
Time: 11:01

DRIVER UPPER RIB (Y) ACCELERATION VS TIME REDUNDANT

Customer: NHTSA
Test Number: C55500

LURYR1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-108

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

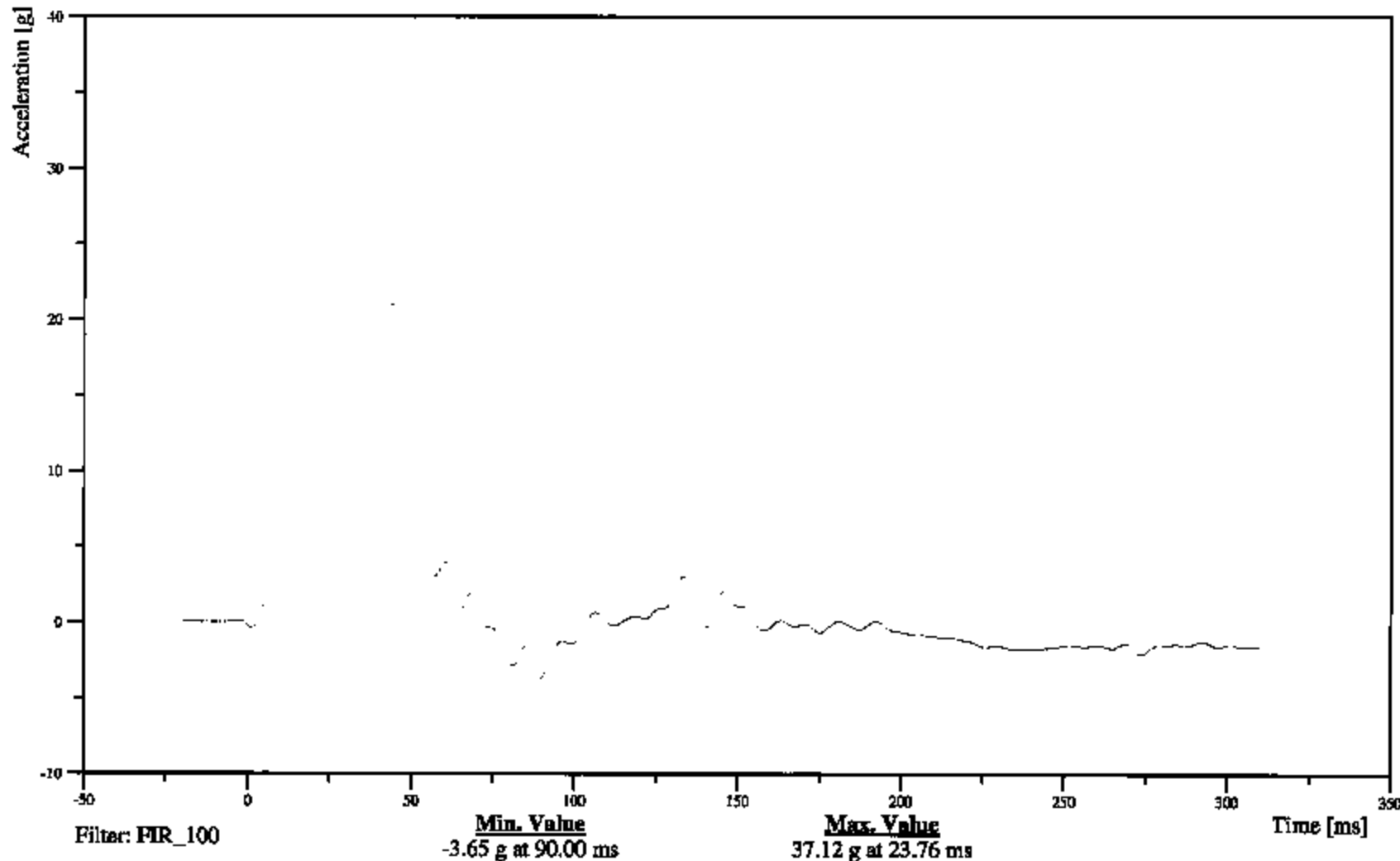
File: 04072005
Time: 11:01

DRIVER LOWER RIB (Y) ACCELERATION VS TIME, REDUNDANT

Customer: NHTSA
Test Number: C55500

LLRYR1

TRC Inc. Test Lab: CTF
Test Number: 050413



B-109

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

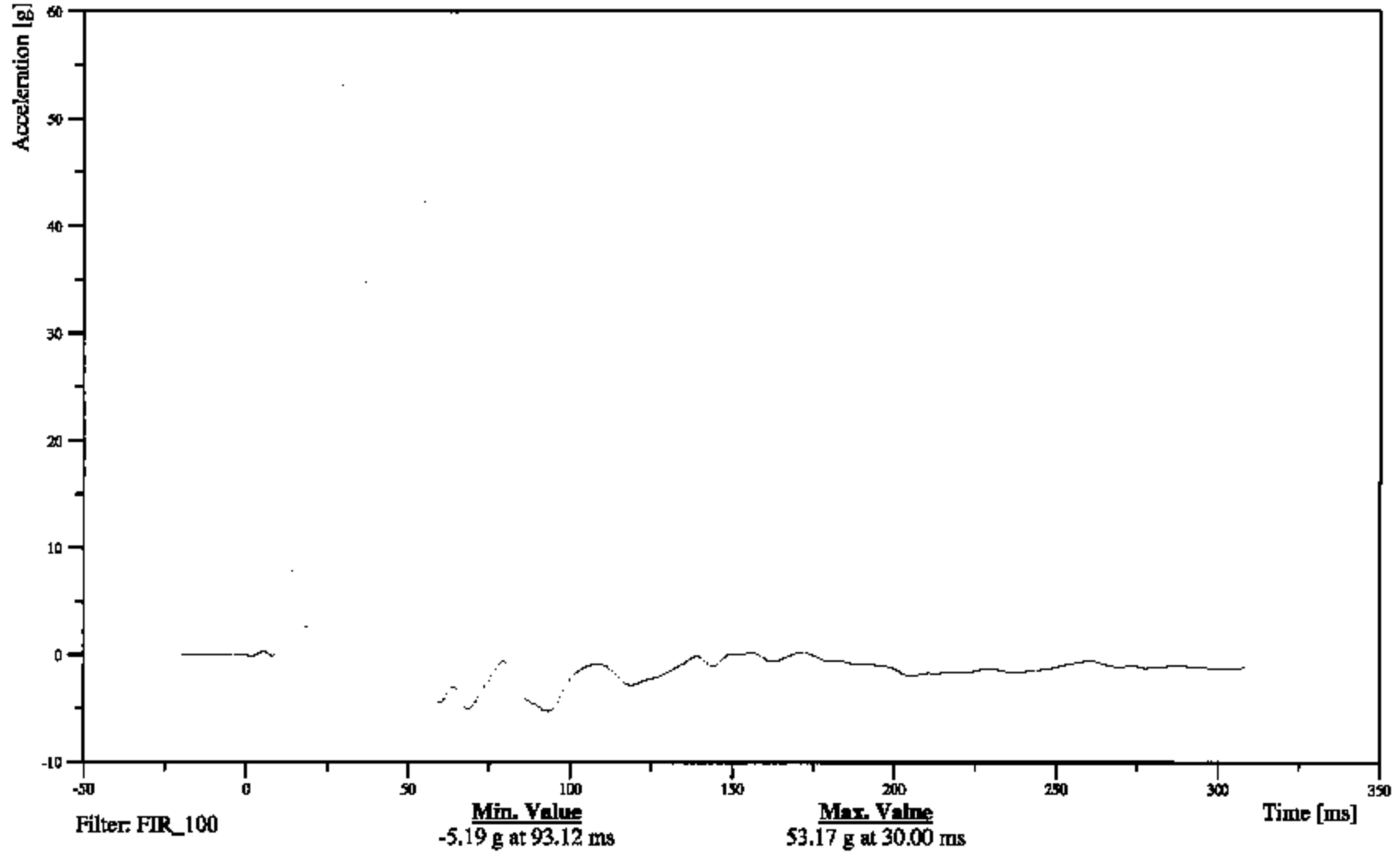
Date: 04/07/2005
Time: 11:01

DRIVER LOWER SPINE (Y) ACCELERATION VS TIME REDUNDANT

Customer: NHTSA
Test Number: C55500

T12YR1

TRC Inc. Test Lab: CTF
Test Number: 050413



R-110

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

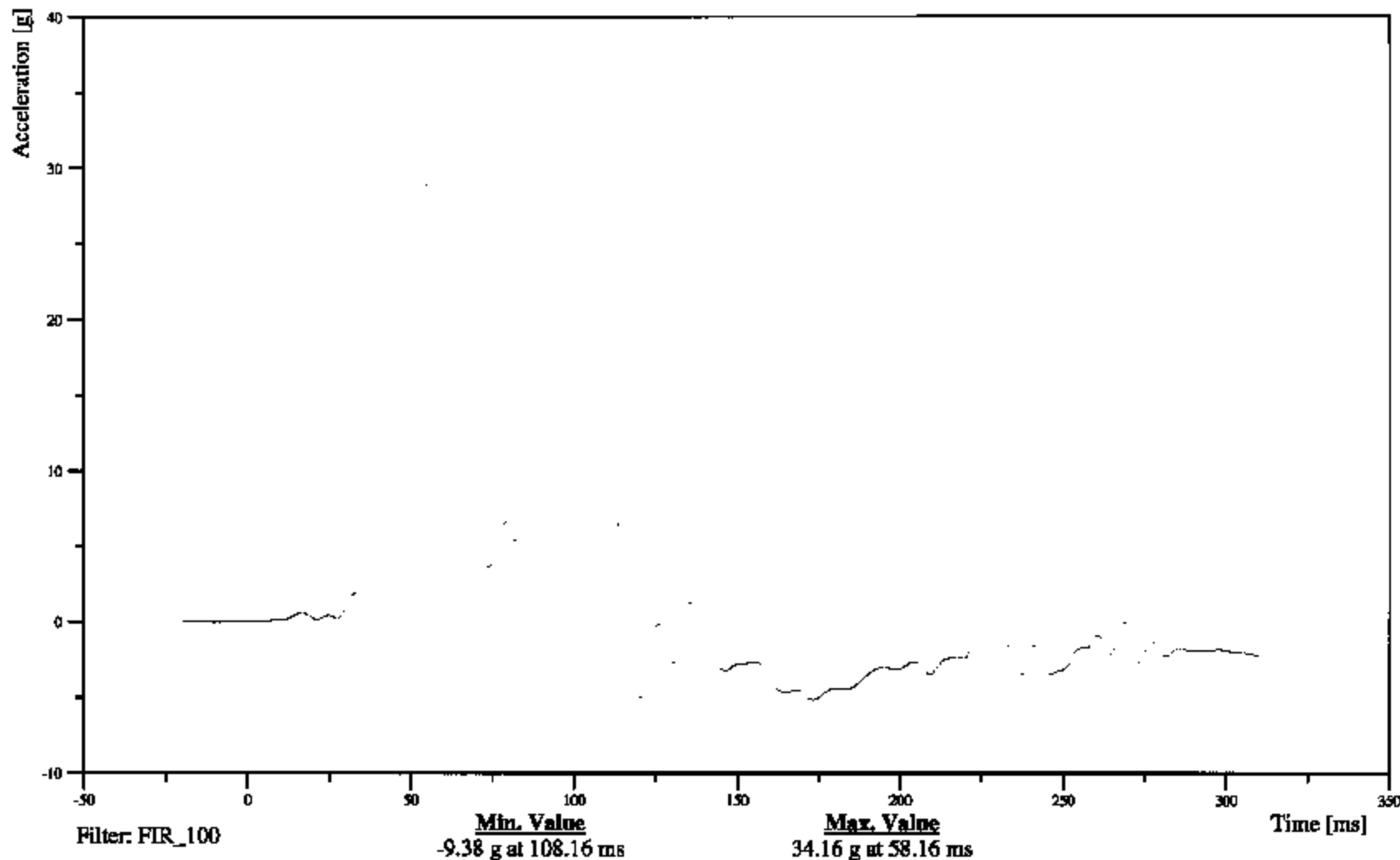
Date: 04/07/2003
Time: 11:01

PASSENGER UPPER RIB (Y) ACCELERATION VS TIME REDUNDANT

Customer: NHTSA
Test Number: C55500

LURYR4

TRC Inc. Test Lab: CTF
Test Number: 050413



B-111

050413

48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy

Date: 04/07/2005

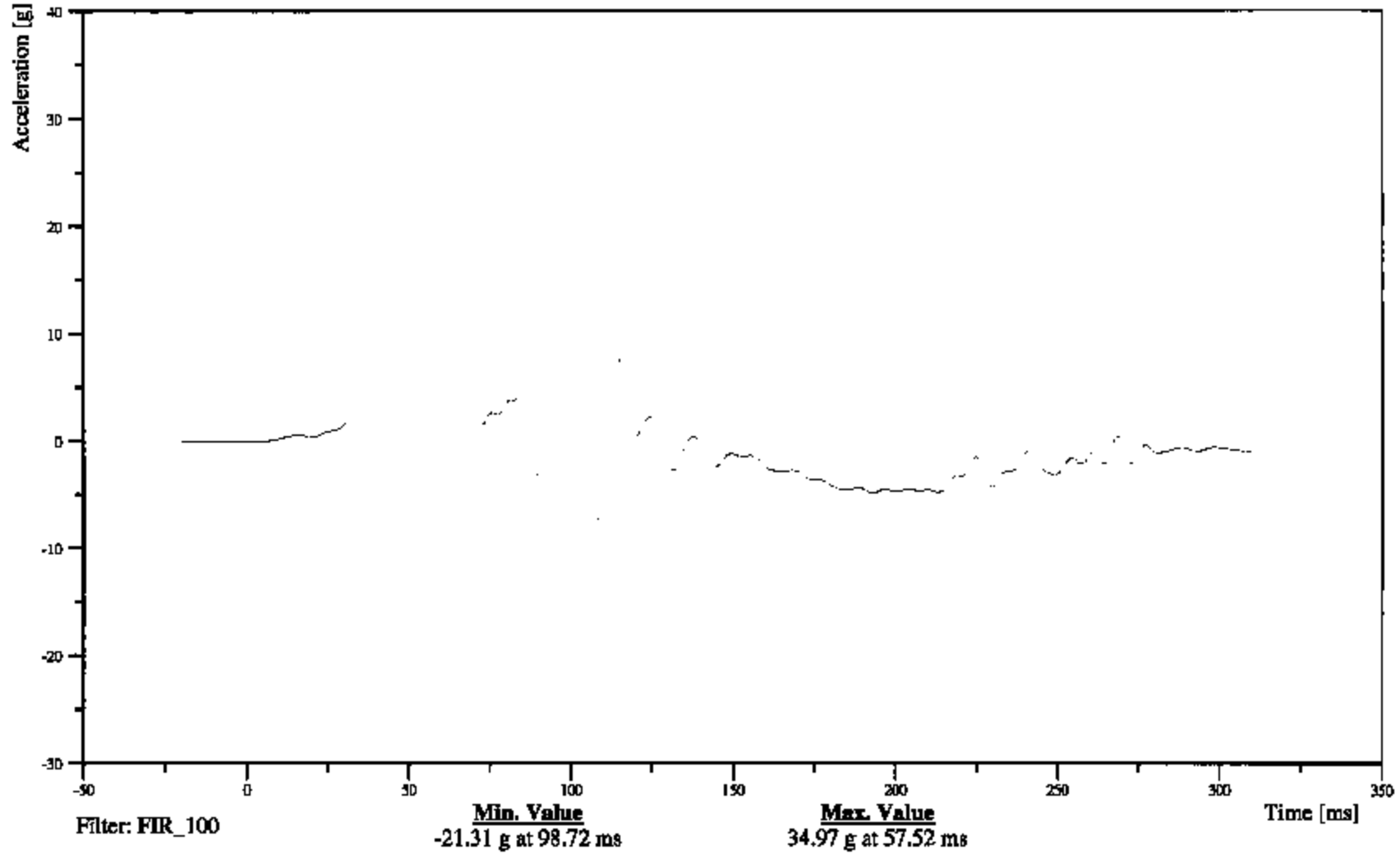
PASSENGER LOWER RIB (Y) ACCELERATION VS TIME REDUNDANT

Time: 11:01

Customer: NHTSA
Test Number: C55500

LLRYR4

TRC Inc. Test Lab: CTF
Test Number: 050413



B-112

050413

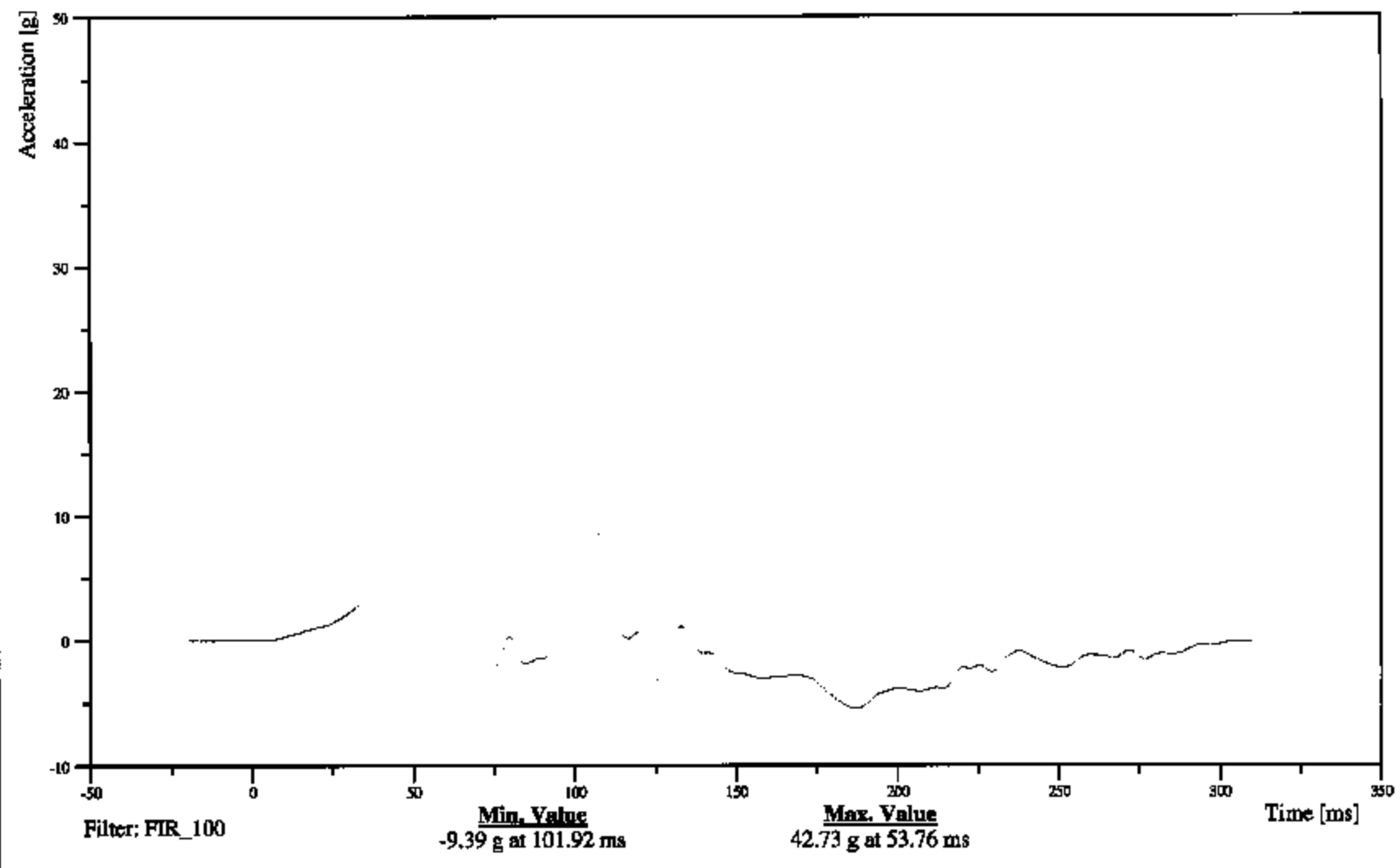
48/24 kph 90 Degree Side Impact (MDB) into Left Side of 2005 Subaru Legacy
PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME REDUNDANT

Date: 04/07/2008
Time: 11:01

Customer: NHTSA
Test Number: C55500

T12YR4

TRC Inc. Test Lab: CTF
Test Number: 050413



B-113

050413

Appendix C

SID Configuration and Performance Verification Data

Summary
 SID Pre-Test and Post-Test Calibration
 Configured For Left Side Impact

Date: 04/07/05 - 04/25/05 TRC Inc. Test Number: SN028 & S/N065

Laboratory Technician: V. Olivieri and V. Watters

Test Parameter	Specification	SID 028		SID 065	
		Pre-Test	Post-Test	Pre-Test	Post-Test
SH - Seated Height (mm)	889-909	897	895	893	896
RH - Rib Height (mm)	502-520	512	509	509	512
HP - Hip Pivot Height (mm)	99 ref	99.1	99.1	99.1	99.1
KH - Knee Pivot from Back Line (mm)	511-526	523	523	520	522
KV - Knee Pivot to Floor (mm)	490-505	494	495	495	495
HW - Hip Width (mm)	356-391	360	369	372	372
Thorax Impacts					
Temperature (°C)	18.9-25.5	21.4	20.7	21.2	21.4
Relative Humidity (%)	10-70	54	26	22	25
Probe Speed (m/s)	4.27-4.33	4.32	4.29	4.32	4.29
Upper Rib (g's)	37-46	44.3	41.7	40.8	45.5
Lower Rib (g's)	37-46	41.2	38.4	37.5	44.3
Lower Spine (g's)	15-22	19.3	17.6	18.0	20.4
Pelvis Impacts					
Temperature (°C)	18.9-25.5	21.4	21.6	21.4	21.1
Relative Humidity (%)	10-70	53	25	22	52
Probe Speed (m/s)	4.27-4.33	4.32	4.31	4.32	4.29
Pelvis (g's)	40-60	46.3	46.2	52.8	53.1

Calibration Test Results

Pre-Test

SID: 028

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber passed all test requirements on November 23, 2004 for a previous calibration series.

Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 028 Calibration No. 14

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	897 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	512 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Knee Pivot From Backline	KH	510.5 - 525.8 mm	523 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	494 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	360 mm	Yes
Top Rib Width From CL	RW-1	165.1 - 180.3 mm	174 mm	Yes
Bottom Rib Width From CL	RW-2	165.1 - 180.3 mm	173 mm	Yes
Difference Between Top & Bottom Rib Width from CL		\leq 2.5 mm	1.0 mm	Yes

Technician

Vincent Oliveri

Approved

H. J. Webb

TRE

Transportation Research Center Inc.

572F Damper Test

SID Serial No. 028 Calibration No. 12 - A5

Test Date 11/23/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.3 C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Pendulum Velocity		2.71 m/sec	
Maximum Force at Test Velocity	652 - 907 N	790 N	Yes
Maximum Displacement at Test Velocity	29.7 - 34.4 mm	29.7 mm	Yes

Test meets specifications.

Comments:

Damper was bled.

Damper Setting : 5.5

Technician

Vincent Oliveri

Approved

V. J. Walker

11.24.2004 12:42:35 1544



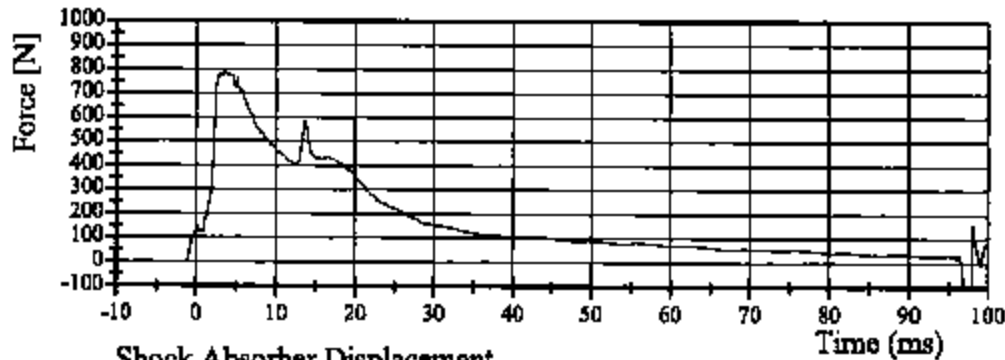
Transportation Research Center Inc.

572F Damper Test

SID Serial No. 028 Calibration No. 12 - A5

Test Date 11/23/2004

Shock Absorber Resistive Force

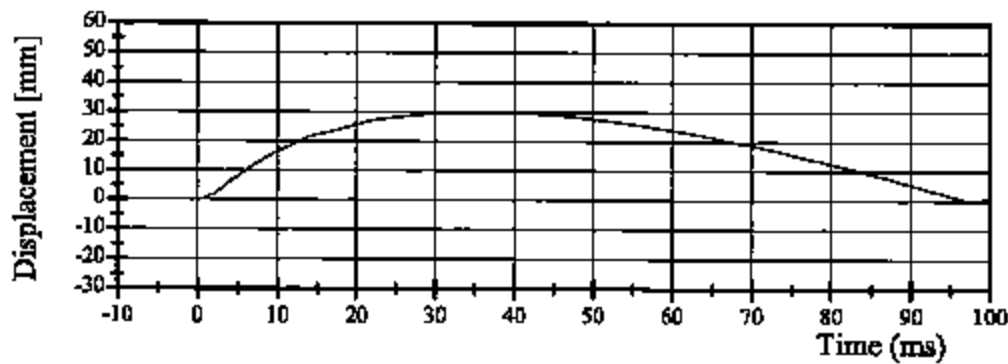


Filter Class: 1000

Max: 790 N at 3.6 ms

Min: -1513 N at 97.4 ms

Shock Absorber Displacement



Filter Class: 1000

Max: 29.7 mm at 36.3 ms

Min: -0.4 mm at 97.8 ms

11.24.2004 12:42:36 1544



Transportation Research Center Inc.

572F Damper Test

SID Serial No. 028 Calibration No. 12 - B15

Test Date 11/23/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.3 C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Pendulum Velocity		4.28 m/sec	
Maximum Force at Test Velocity	1747 - 2111 N	1941 N	Yes
Maximum Displacement at Test Velocity	31.7 - 37.2 mm	34.4 mm	Yes

Test meets specifications.

Comments:

Damper was bled.

Damper Setting : 5.5

Technician



Approved



11.24.2004 12:45:01 1197



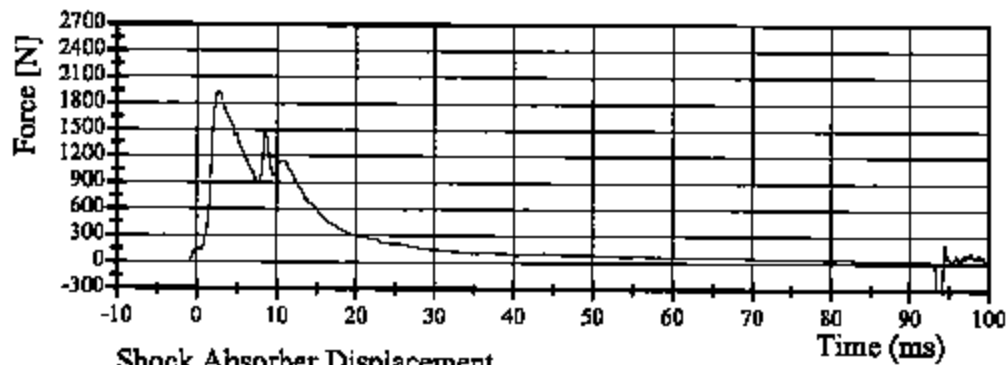
Transportation Research Center Inc.

572F Damper Test

SID Serial No. 028 Calibration No. 12 - B15

Test Date 11/23/2004

Shock Absorber Resistive Force

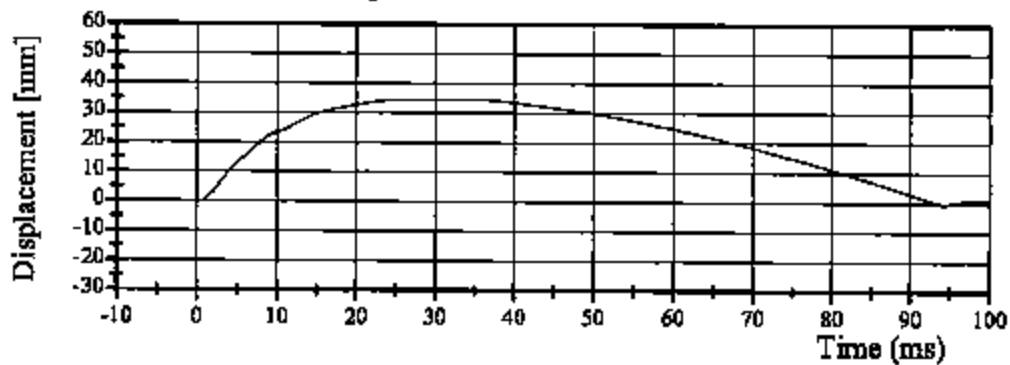


Filter Class: 1000

Max: 1941 N at 2.6 ms

Min: -1831 N at 93.6 ms

Shock Absorber Displacement



Filter Class: 1000

Max: 34.4 mm at 30.8 ms

Min: -0.5 mm at 94.2 ms

11.24.2004 12:45:02 1197



Transportation Research Center Inc.

572F Damper Test

SID Serial No. 028 Calibration No. 12 - C3

Test Date 11/23/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	20.9 C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Pendulum Velocity		6.02 m/sec	
Maximum Force at Test Velocity	3649 - 4329 N	3928 N	Yes
Maximum Displacement at Test Velocity	33.3 - 39.5 mm	37.1 mm	Yes

Test meets specifications.

Comments:

Damper was bled.

Damper Setting : 5.5

Technician

Kurt Olm

Approved

V.F. Walker

11.24.2004 12:43:24 1026



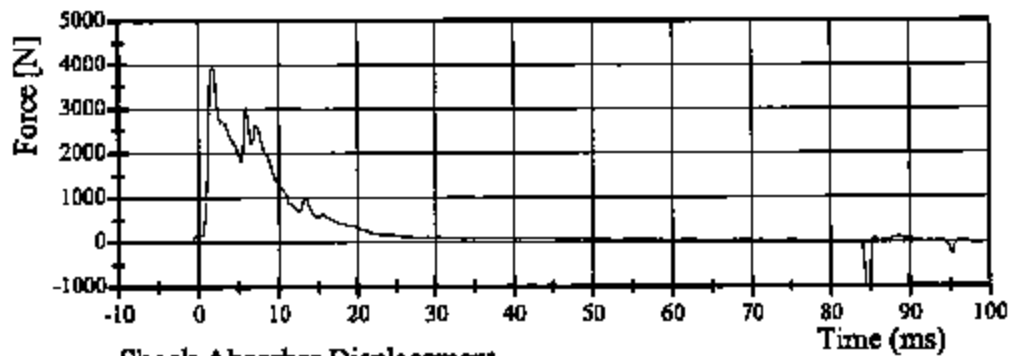
Transportation Research Center Inc.

572F Damper Test

SID Serial No. 028 Calibration No. 12 - C3

Test Date 11/23/2004

Shock Absorber Resistive Force

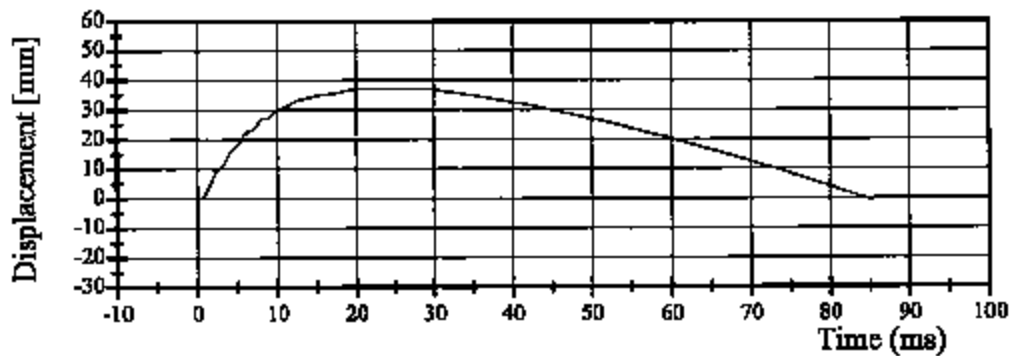


Filter Class: 1000

Max: 3928 N at 1.8 ms

Min: -1416 N at 84.7 ms

Shock Absorber Displacement



Filter Class: 1000

Max: 37.1 mm at 26.1 ms

Min: -0.4 mm at 85.0 ms

11.24.2004 12:43:25 1026



Transportation Research Center Inc.

572F Left Thorax Test

SID Serial No. 028 Calibration No. 14 - 1

Test Date 04/07/2005

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.4 C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.32 m/sec	Yes
Upper Rib Bar Peak Acceleration	37 - 46 g	44.3 g	Yes
Lower Rib Bar Peak Acceleration	37 - 46 g	41.2 g	Yes
Lower Thoracic Spine (T12) Peak Acceleration	15 - 22 g	19.3 g	Yes

Test meets specifications.

Comments:

Technician

Vincent Oliveri

Approved

V. F. Walter

04.07.2005 14:34:29 3057



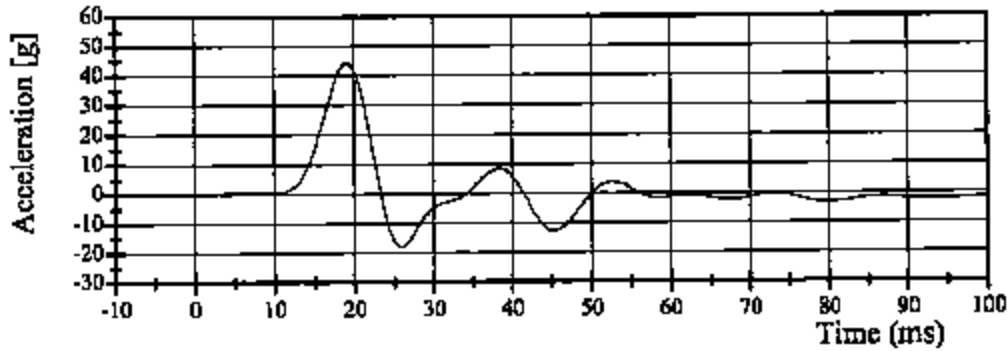
Transportation Research Center Inc.

572F Left Thorax Test

SID Serial No. 028 Calibration No. 14 - 1

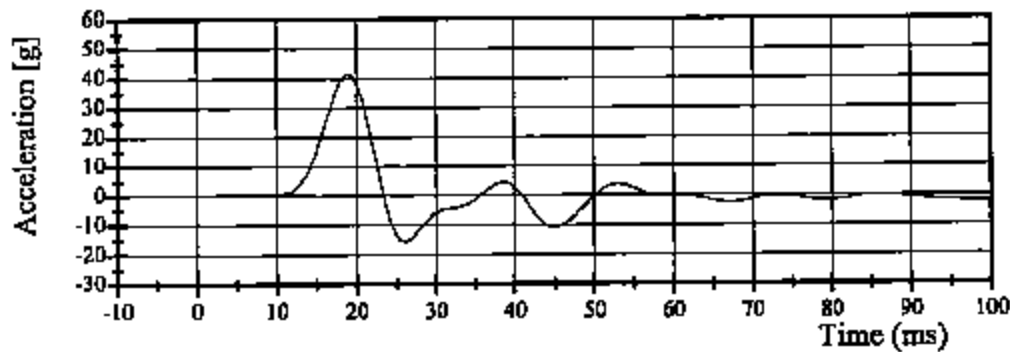
Test Date 04/07/2005

Upper Rib Bar Acceleration



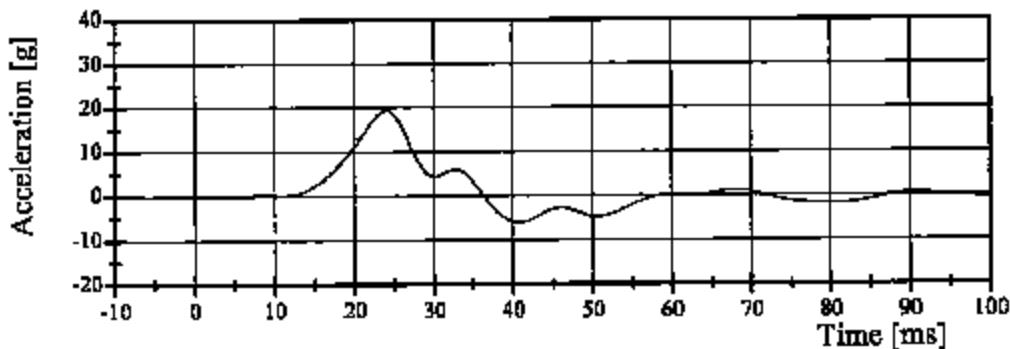
Filter Class: FIR 100
Max: 44.3 g at 19.3 ms
Min: -18.0 g at 26.1 ms

Lower Rib Bar Acceleration



Filter Class: FIR 100
Max: 41.2 g at 18.7 ms
Min: -15.6 g at 26.2 ms

Lower Thoracic Spine (T12) Acceleration



Filter Class: FIR 100
Max: 19.3 g at 24.2 ms
Min: -6.0 g at 40.6 ms

04.07.2005 14:34:29 3057



Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 028 Calibration No. 14 - 11

Test Date 04/07/2005

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	6.8 - 8.1 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

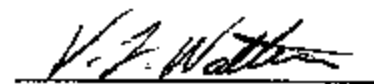
Test meets specifications.

Comments:

Technician



Approved



04.07.2005 10:41:13 1599

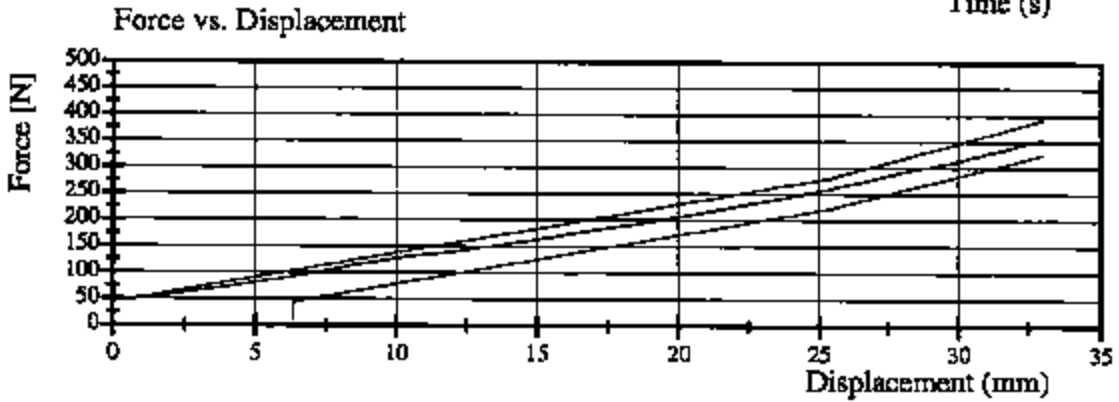
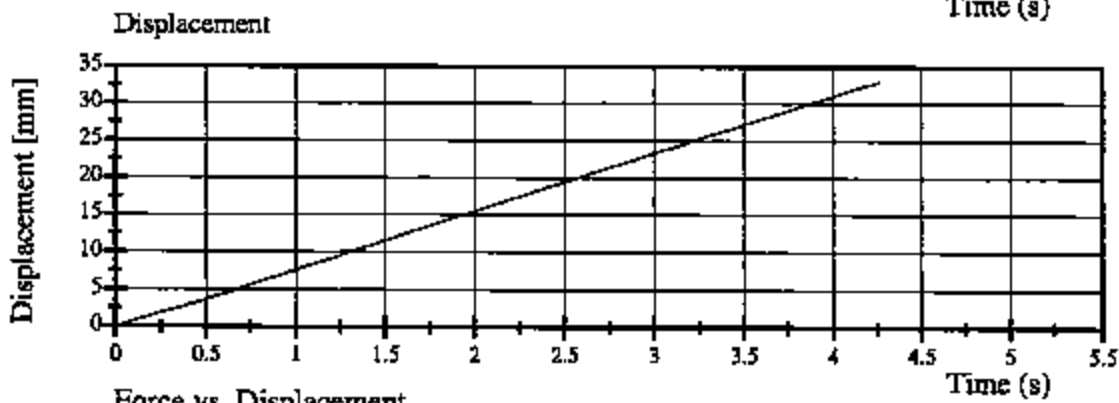
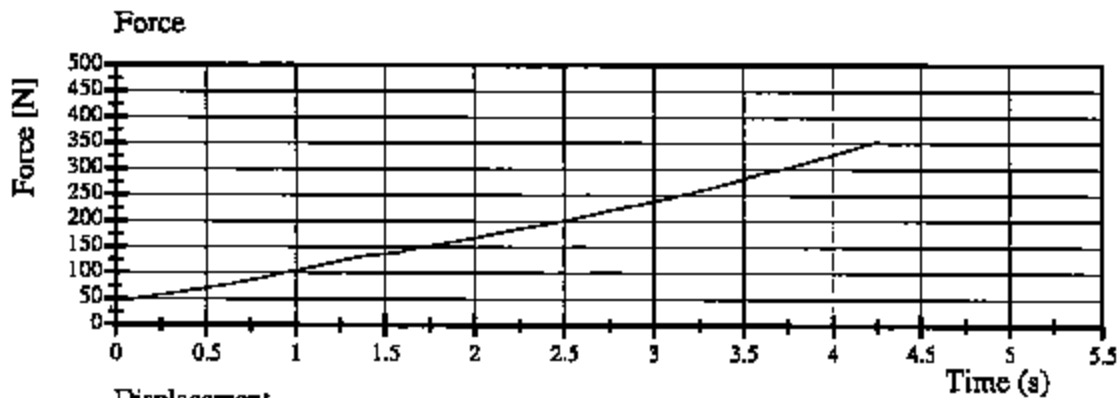


Transportation Research Center Inc.

572B Abdomen Compression Test

SID Serial No. 028 Calibration No. 14 - 11

Test Date 04/07/2005



04.07.2005 10:41:14 1599



TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 06-Apr-07

TRC, INC.

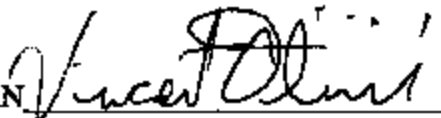
TEST NO: 028C14TF1

572B SN 028 TORSO FLEX CAL 14

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6° C	21.1 °C
RELATIVE HUMIDITY	10 - 70 %	52 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	142.4 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	169.0 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	235.8 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	3.1 °

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

572F Left Pelvis Test

SID Serial No. 028 Calibration No. 14 - 1

Test Date 04/07/2005

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.4 C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.32 m/sec	Yes
Pelvis Peak Acceleration	40 - 60 g	46.3 g	Yes
Time Above 20 g	3 - 7 ms	6.32 ms	Yes
Unimodal requirement for pelvis acceleration	Yes	Yes	Yes

Comments:

Technician

Vincent Olivero

Approved

H. J. Walker

04.07.2005 14:47:43 3027

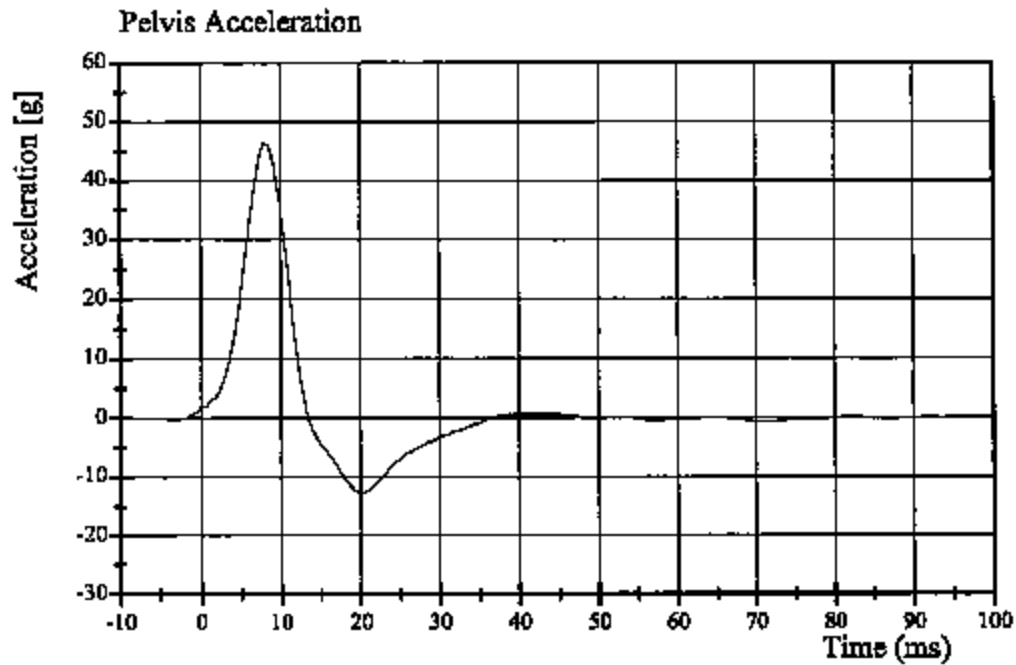


Transportation Research Center Inc.

572F Left Pelvis Test

SID Serial No. 028 Calibration No. 14 - 1

Test Date 04/07/2005



Filter Class: FIR 100

Max: 46.3 g at 7.9 ms

Min: -12.7 g at 19.8 ms

04.07.2005 14:47:43 3027



Calibration Test Results

Pre-Test

SID: 065

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber passed all test requirements on November 18, 2004 for a previous calibration series.

Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 065 Calibration No. 17

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	893 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	509 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Knee Pivot From Backline	KH	510.5 - 525.8 mm	520 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	495 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	372 mm	Yes
Top Rib Width From CL	RW-1	165.1 - 180.3 mm	172 mm	Yes
Bottom Rib Width From CL	RW-2	165.1 - 180.3 mm	172 mm	Yes
Difference Between Top & Bottom Rib Width from CL		\leq 2.5 mm	0.0 mm	Yes

Technician

Vincent Stini

Approved

David K. Stevens

TRE

Transportation Research Center Inc.

572F Damper Test

SID Serial No. 065 Calibration No. 15 - A1

Test Date 11/18/2004

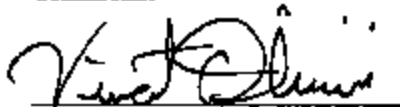
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.5 C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Pendulum Velocity		2.71 m/sec	
Maximum Force at Test Velocity	650 - 904 N	748 N	Yes
Maximum Displacement at Test Velocity	29.6 - 34.4 mm	30.8 mm	Yes

Test meets specifications.

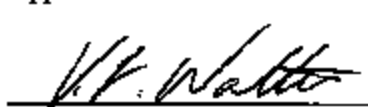
Comments:

Damper Setting : 6.0

Technician



Approved



11.18.2004 11:02:53 1515

TRC

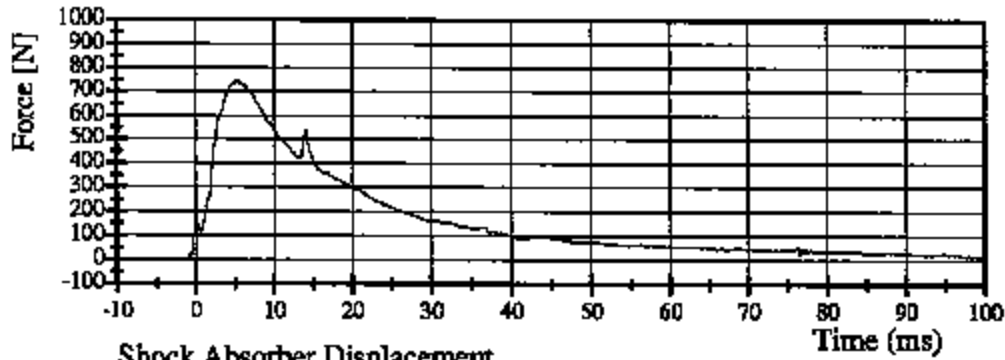
Transportation Research Center Inc.

572F Damper Test

SID Serial No. 065 Calibration No. 15 - A1

Test Date 11/18/2004

Shock Absorber Resistive Force

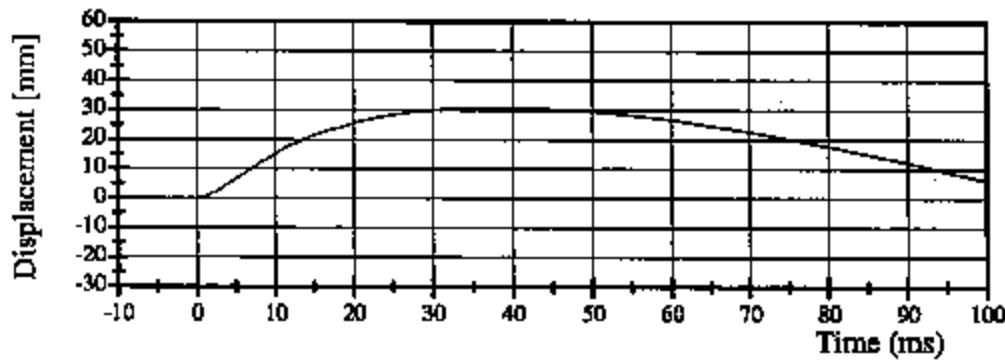


Filter Class: 1000

Max: 748 N at 5.4 ms

Min: -1509 N at 110.2 ms

Shock Absorber Displacement



Filter Class: 1000

Max: 30.8 mm at 36.2 ms

Min: -0.3 mm at 110.6 ms

11.18.2004 11:02:54 1515



Transportation Research Center Inc.

572F Damper Test

SID Serial No. 065 Calibration No. 15 - B1

Test Date 11/18/2004

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.1 C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Pendulum Velocity		4.28 m/sec	
Maximum Force at Test Velocity	1747 - 2111 N	1900 N	Yes
Maximum Displacement at Test Velocity	31.7 - 37.2 mm	36.4 mm	Yes

Test meets specifications.

Comments:

Damper Setting : 6.0

Technician

Vincenzo Amici

Approved

V. K. Walter

11.18.2004 11:11:44 1176

TRE

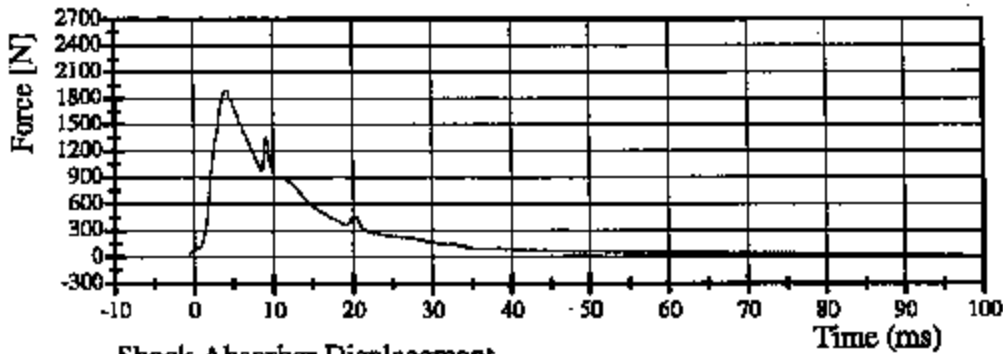
Transportation Research Center Inc.

572F Damper Test

SID Serial No. 065 Calibration No. 15 - B1

Test Date 11/18/2004

Shock Absorber Resistive Force

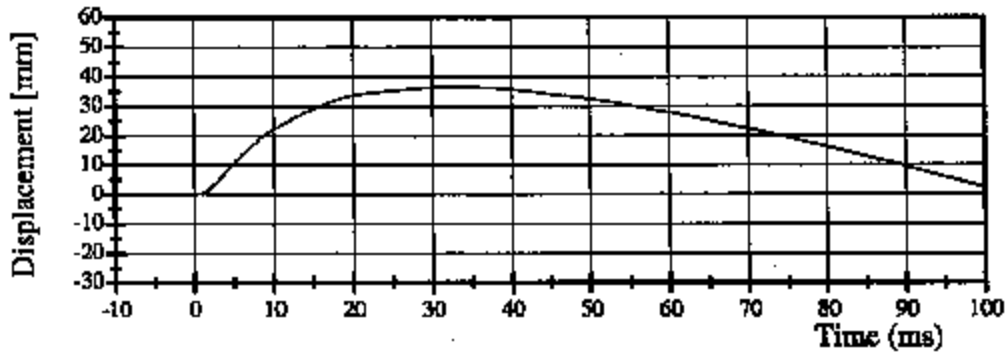


Filter Class: 1000

Max: 1900 N at 4.2 ms

Min: -1370 N at 103.8 ms

Shock Absorber Displacement



Filter Class: 1000

Max: 36.4 mm at 32.2 ms

Min: -0.3 mm at 104.2 ms

11.18.2004 11:11:45 1176



Transportation Research Center Inc.

572F Damper Test

SID Serial No. 065 Calibration No. 15 - C1

Test Date 11/18/2004

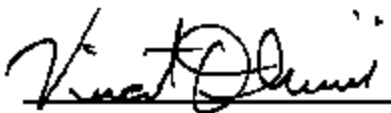
Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.6 C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Velocity		6.05 m/sec	
Maximum Force at Test Velocity	3681 - 4365 N	4279 N	Yes
Maximum Displacement at Test Velocity	33.3 - 39.5 mm	38.8 mm	Yes

Test meets specifications.

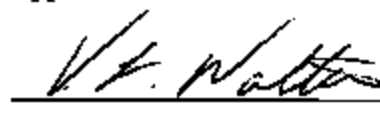
Comments:

Damper Setting : 6.0

Technician



Approved



11.18.2004 11:27:56 1016

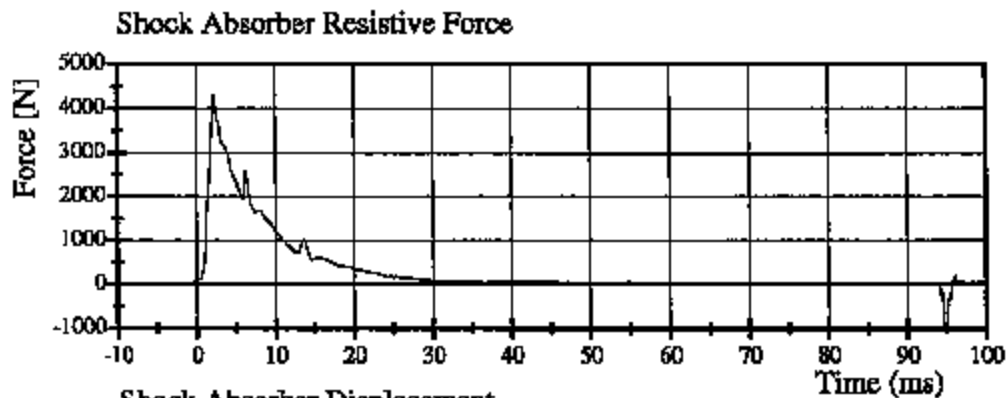
TRE

Transportation Research Center Inc.

572F Damper Test

SID Serial No. 065 Calibration No. 15 - C1

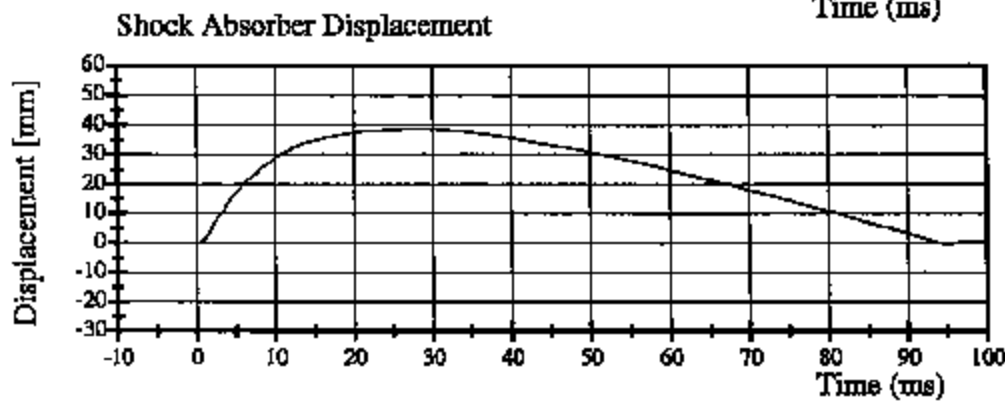
Test Date 11/18/2004



Filter Class: 1000

Max: 4279 N at 2.2 ms

Min: -1526 N at 94.9 ms



Filter Class: 1000

Max: 38.8 mm at 27.9 ms

Min: -0.3 mm at 95.3 ms

11.18.2004 11:27:57 1016



Transportation Research Center Inc.

572F Left Thorax Test

SID Serial No. 065 Calibration No. 17 - 1

Test Date 04/12/2005

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.2 C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.32 m/sec	Yes
Upper Rib Bar Peak Acceleration	37 - 46 g	40.8 g	Yes
Lower Rib Bar Peak Acceleration	37 - 46 g	37.5 g	Yes
Lower Thoracic Spine (T12) Peak Acceleration	15 - 22 g	18.0 g	Yes

Test meets specifications.

Comments:

Technician



Approved



04.12.2005 12:22:46 3051



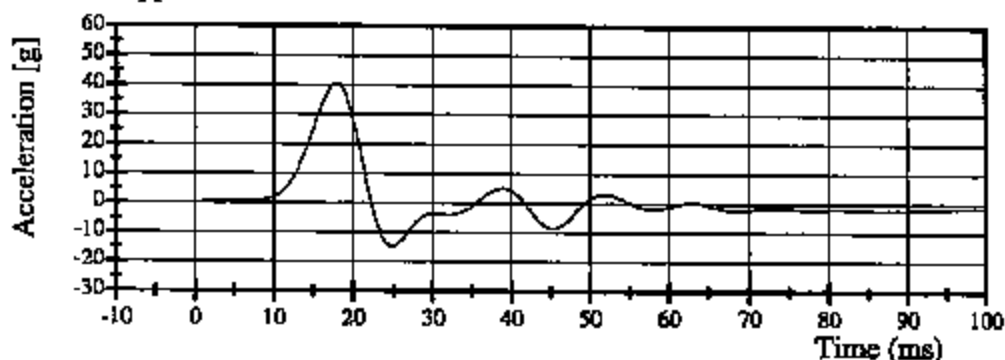
Transportation Research Center Inc.

572F Left Thorax Test

SID Serial No. 065 Calibration No. 17 - 1

Test Date 04/12/2005

Upper Rib Bar Acceleration

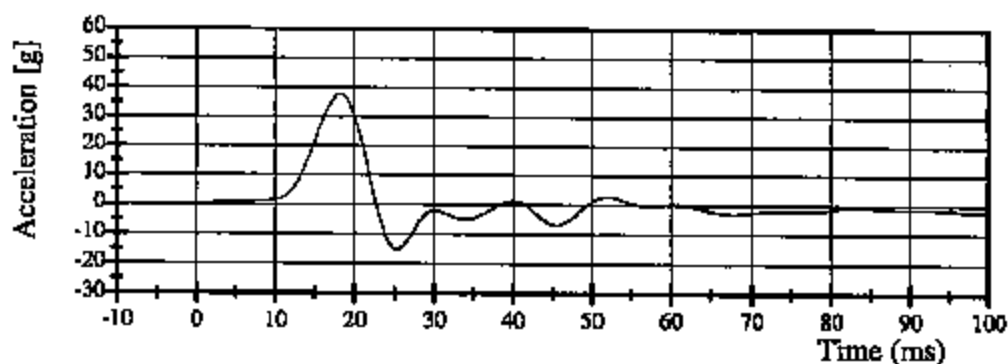


Filter Class: FIR 100

Max: 40.8 g at 17.9 ms

Min: -15.0 g at 24.8 ms

Lower Rib Bar Acceleration

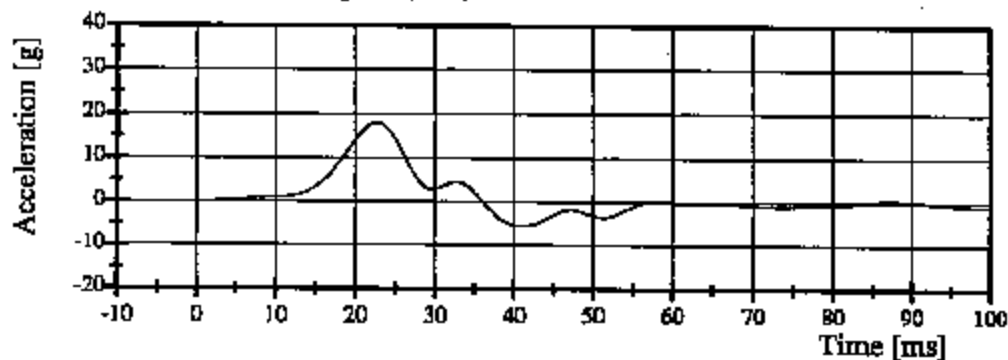


Filter Class: FIR 100

Max: 37.5 g at 18.5 ms

Min: -15.3 g at 25.4 ms

Lower Thoracic Spine (T12) Acceleration



Filter Class: FIR 100

Max: 18.0 g at 22.9 ms

Min: -5.5 g at 41.0 ms

04.12.2005 12:22:47 3051



TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 12-Apr-05

TRC, INC.

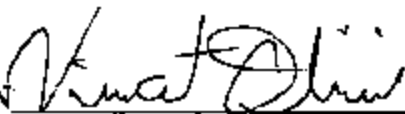
TEST NO: 065C17TF1

572B SN 065 TORSO FLEX CAL 17

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6° C	21.1 °C
RELATIVE HUMIDITY	10 - 70 %	23 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	137.9 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	195.7 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	231.3 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12°	5.2°

TEST MEETS SPECIFICATIONS

TECHNICIAN



Transportation Research Center Inc.

572B Abdomen Test

SID Serial No. 065 Calibration No. 17 - 2

Test Date 04/12/2005

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	21 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.7 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

Kurt Oliver

Approved

V.F. Walter

04.15.2005 17:23:27 1627

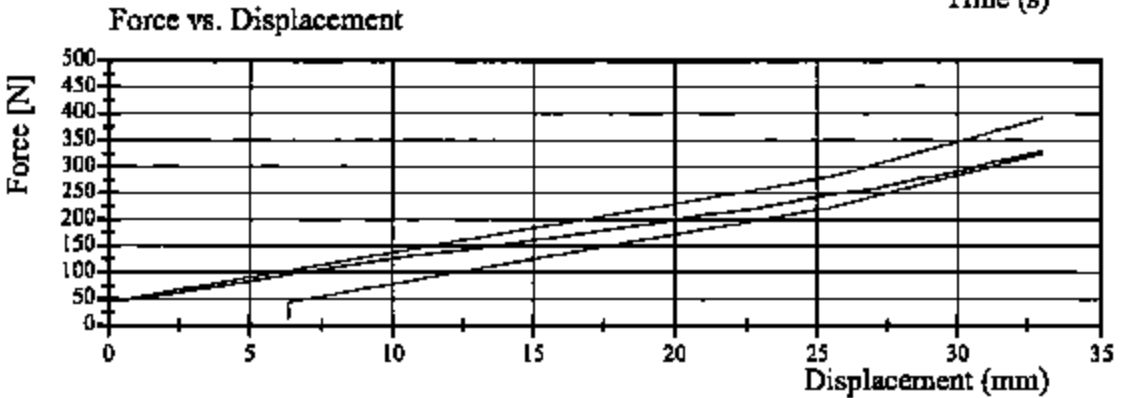
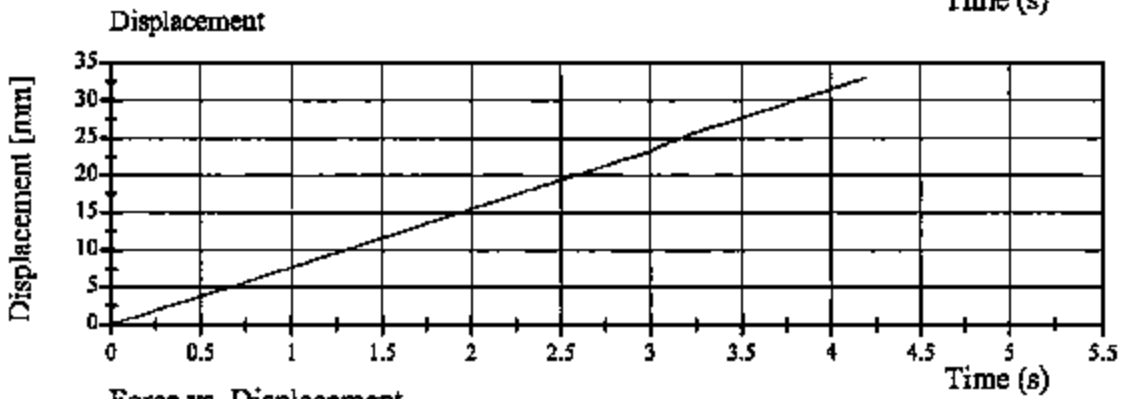
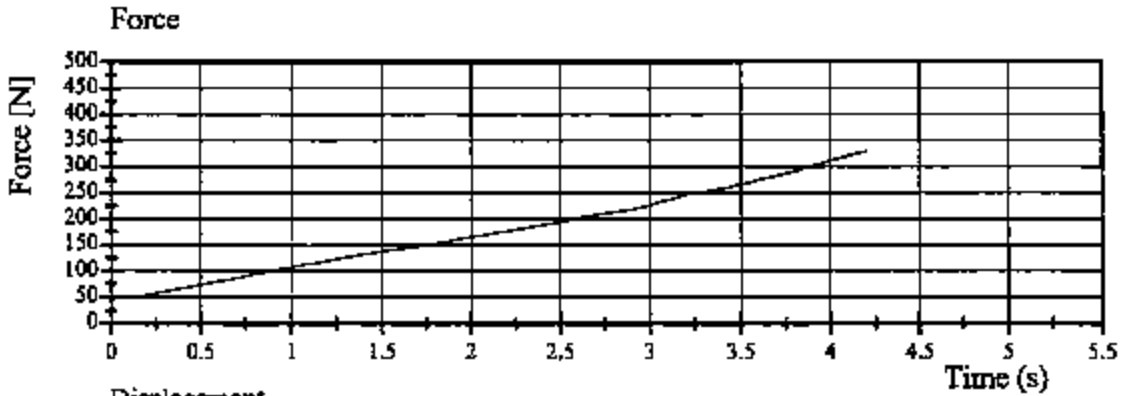


Transportation Research Center Inc.

572B Abdomen Test

SID Serial No. 065 Calibration No. 17 - 2

Test Date 04/12/2005



04.15.2005 17:23:28 1627



Transportation Research Center Inc.

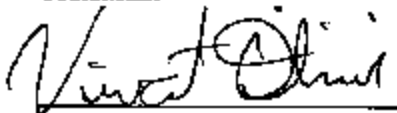
572F Left Pelvis Test


SID Serial No. 065 Calibration No. 17 - 1

Test Date 04/12/2005

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.4 C	Yes
Relative Humidity	10 - 70 %	22 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.32 m/sec	Yes
Pelvis Peak Acceleration	40 - 60 g	52.8 g	Yes
Time Above 20 g	3 - 7 ms	5.92 ms	Yes
Unimodal requirement for pelvis acceleration	Yes	Yes	Yes

Comments:

Technician


Approved


04.12.2005 11:32:33 3050

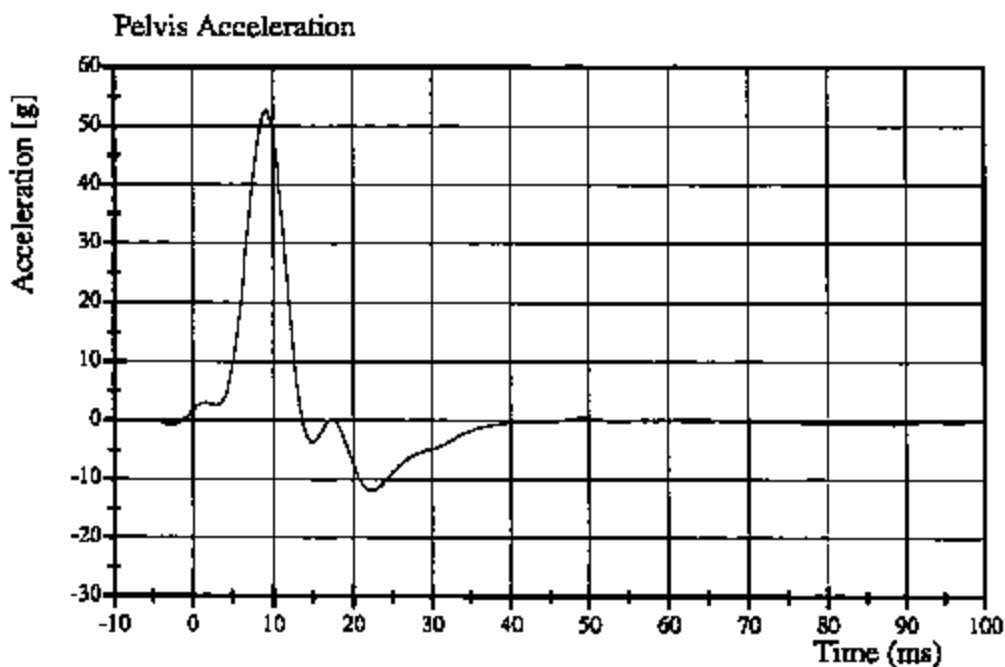


Transportation Research Center Inc.

572F Left Pelvis Test

SID Serial No. 065 Calibration No. 17 - 1

Test Date 04/12/2005



Filter Class: FIR 100

Max: 52.8 g at 9.2 ms

Min: -12.0 g at 22.3 ms

04.12.2005 11:32:34 3050



Calibration Test Results

Post-Test

SID: 028

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber was not tested at this time.

Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 028 Calibration No. 15

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	895 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	509 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Knee Pivot From Backline	KH	510.5 - 525.8 mm	523 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	495 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	364 mm	Yes
Top Rib Width From CL	RW-1	165.1 - 180.3 mm	174 mm	Yes
Bottom Rib Width From CL	RW-2	165.1 - 180.3 mm	173 mm	Yes
Difference Between Top & Bottom Rib Width from CL		<= 2.5 mm	1.0 mm	Yes

Technician

Vinc DiStasio

Approved

V.L. Walter

TRC

Transportation Research Center Inc.

572F Left Thorax Test

SID Serial No. 028 Calibration No. 15 - 1

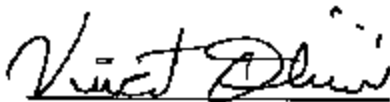
Test Date 04/25/2005

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	20.7 C	Yes
Relative Humidity	10 - 70 %	26 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.29 m/sec	Yes
Upper Rib Bar Peak Acceleration	37 - 46 g	41.7 g	Yes
Lower Rib Bar Peak Acceleration	37 - 46 g	38.4 g	Yes
Lower Thoracic Spine (T12) Peak Acceleration	15 - 22 g	17.6 g	Yes

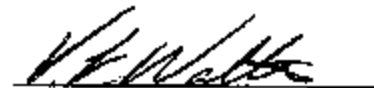
Test meets specifications.

Comments:

Technician



Approved



04.25.2005 09:39:06 3136



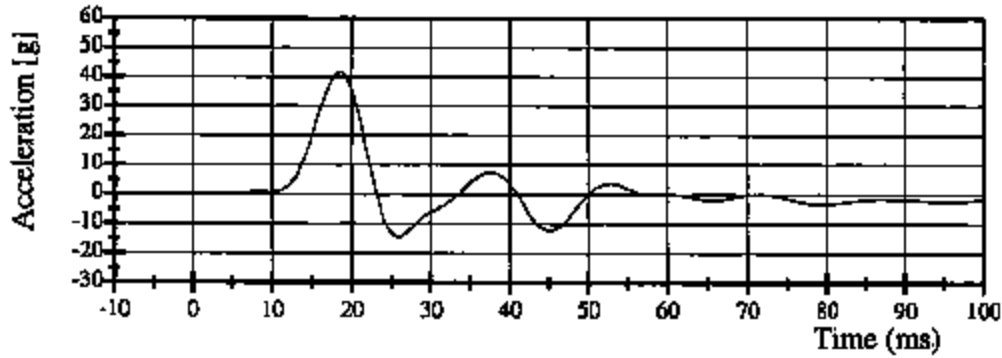
Transportation Research Center Inc.

572F Left Thorax Test

SID Serial No. 028 Calibration No. 15 - 1

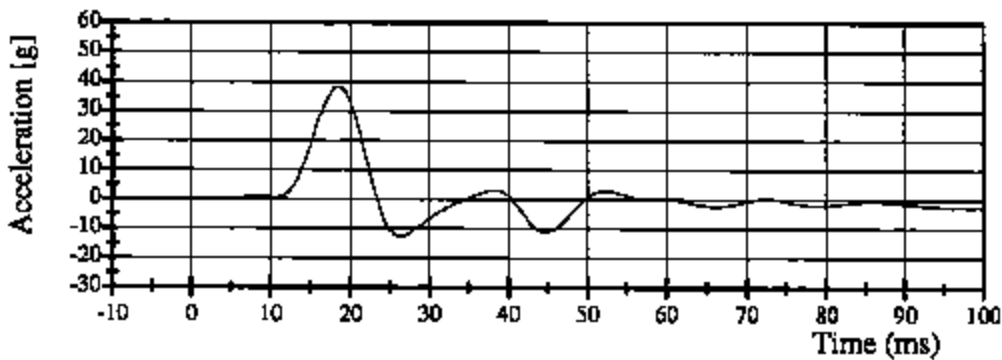
Test Date 04/25/2005

Upper Rib Bar Acceleration



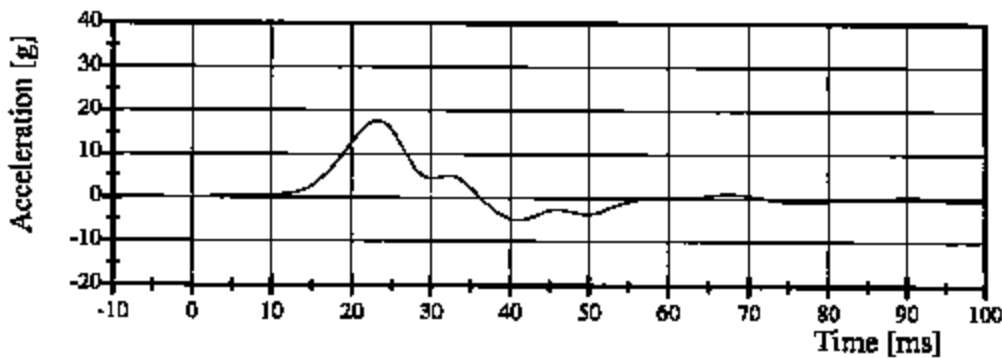
Filter Class: FIR 100
Max: 41.7 g at 18.6 ms
Min: -14.4 g at 26.1 ms

Lower Rib Bar Acceleration



Filter Class: FIR 100
Max: 38.4 g at 18.6 ms
Min: -12.7 g at 26.1 ms

Lower Thoracic Spine (T12) Acceleration



Filter Class: FIR 100
Max: 17.6 g at 23.5 ms
Min: -5.1 g at 41.1 ms

04.25.2005 09:39:07 3136



Transportation Research Center Inc.

572B Abdomen Test

SID Serial No. 028 Calibration No. 15 - 1

Test Date 04/21/2005

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.1 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician



Approved



04.21.2005 09:59:04 1677

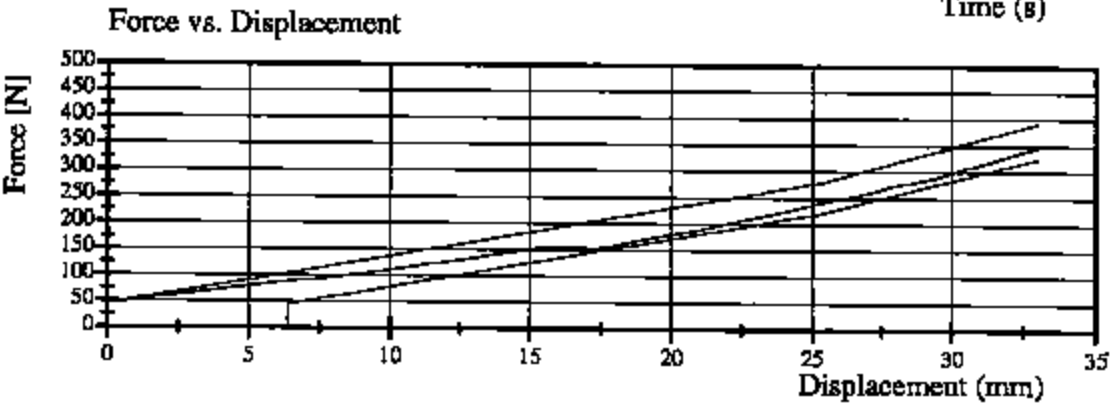
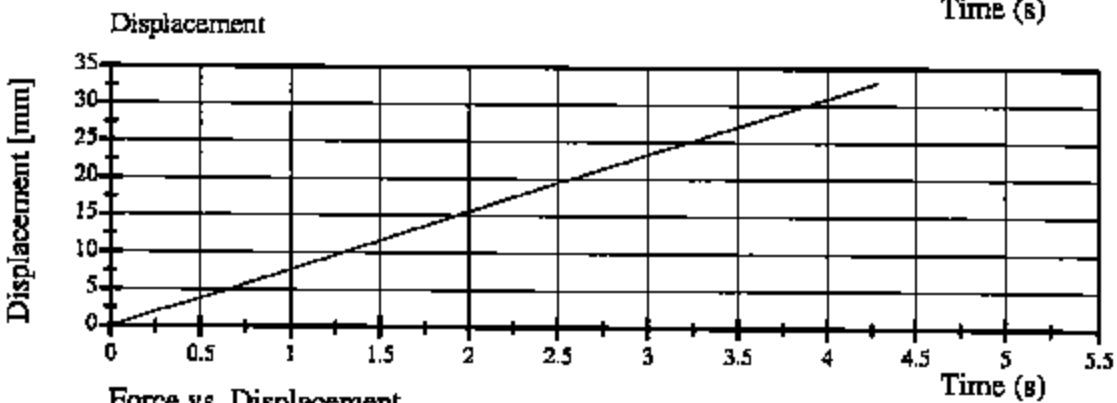
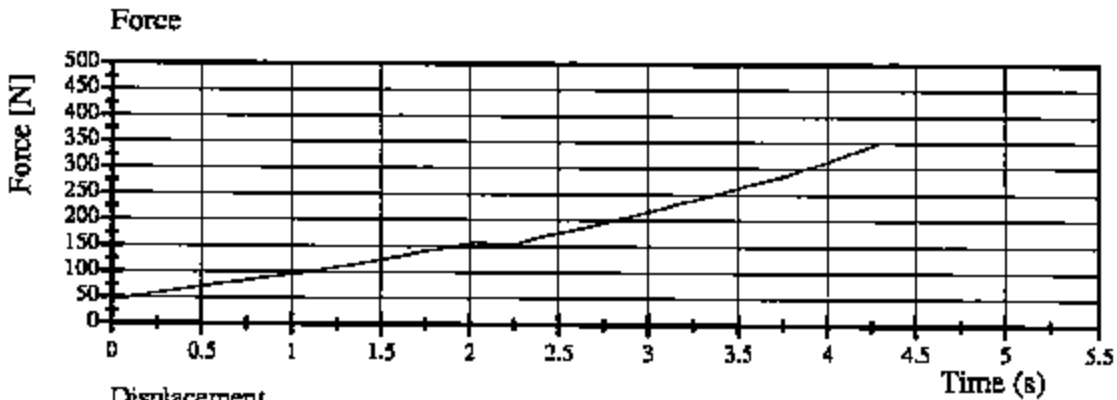


Transportation Research Center Inc.

572B Abdomen Test

SID Serial No. 028 Calibration No. 15 - 1

Test Date 04/21/2005



04.21.2005 09:59:05 1677



TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL DATE: 21-Apr-05

TRC, INC.

TEST NO: 028C15TF1

572B SN 028 TORSO FLEX CAL 15

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6° C	21.6 °C
RELATIVE HUMIDITY	10 - 70 %	38 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	124.6 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	169.0 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	222.4 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	4.9 °

TEST MEETS SPECIFICATIONS

TECHNICIAN

Vince D. [Signature]

Transportation Research Center Inc.

572F Left Pelvis Test

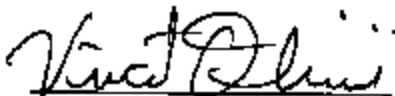
SID Serial No. 028 Calibration No. 15 - 1

Test Date 04/25/2005

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.6 C	Yes
Relative Humidity	10 - 70 %	25 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.31 m/sec	Yes
Pelvis Peak Acceleration	40 - 60 g	46.2 g	Yes
Time Above 20 g	3 - 7 ms	6.40 ms	Yes
Unimodal requirement for pelvis acceleration	Yes	Yes	Yes

Comments:

Technician



Approved



04.25.2005 09:26:59 3173

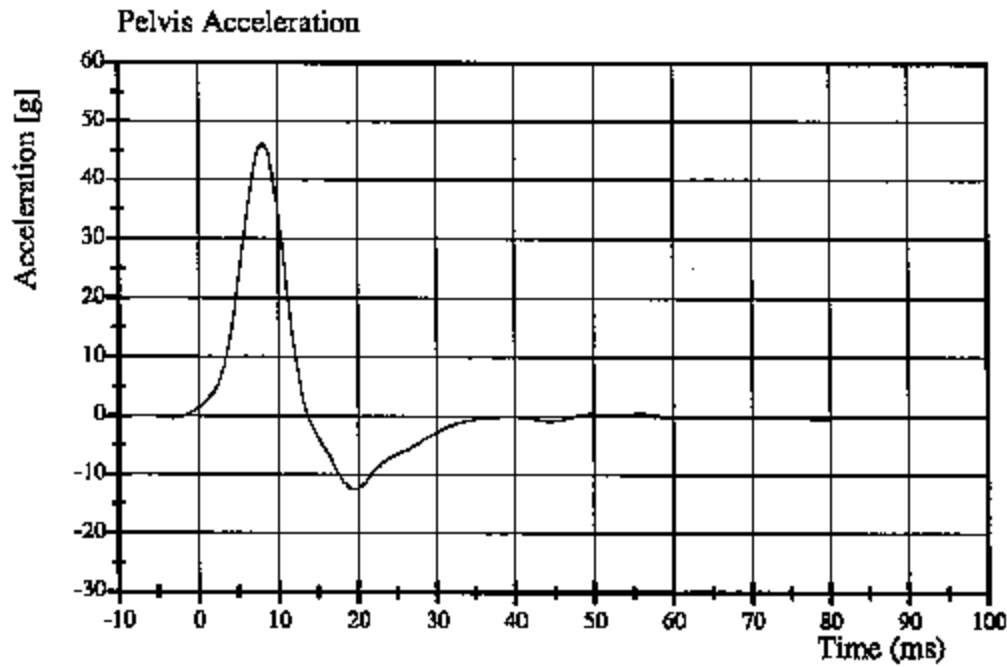


Transportation Research Center Inc.

572F Left Pelvis Test

SID Serial No. 028 Calibration No. 15 - 1

Test Date 04/25/2005



Filter Class: FIR 100

Max: 46.2 g at 8.1 ms

Min: -12.5 g at 19.4 ms

04.25.2005 09:27:01 3173



Calibration Test Results

Post-Test

SID: 065

Configured for Left Side Impact

External Dimensions:	The dummy passed all external dimension requirements.
Lateral Thorax Impact Test:	The lateral thorax passed all impact test requirements.
Lumbar Flexion Test:	The dummy met the lumbar flexion test requirements.
Abdominal Compression Test:	The abdomen met the compression test requirements.
Pelvis Impact Test:	The lateral pelvis passed all impact test requirements.
Thoracic Shock Absorber Test:	The thoracic shock absorber was not tested at this time.

Transportation Research Center Inc.
572F SID Dummy
External Dimensions
Serial No. 065 Calibration No. 18

Test Parameter	Dimension	Specification	Results	Pass
Seated Height	SH	889.0 - 909.3 mm	896 mm	Yes
Rib Height	RH	501.7 - 520.7 mm	512 mm	Yes
Hip Pivot Height	HP	99.1 REF mm	99.1 mm	
Knee Pivot From Backline	KH	510.5 - 525.8 mm	522 mm	Yes
Knee Pivot From Floor	KV	490.2 - 505.5 mm	495 mm	Yes
Hip Width	HW	355.6 - 391.2 mm	372 mm	Yes
Top Rib Width From CL	RW-1	165.1 - 180.3 mm	173 mm	Yes
Bottom Rib Width From CL	RW-2	165.1 - 180.3 mm	172 mm	Yes
Difference Between Top & Bottom Rib Width from CL		\leq 2.5 mm	1.0 mm	Yes

Technician

Vincent Otieno

Approved

V. E. Watter

TRE

Transportation Research Center Inc.

572F Left Thorax Test

SID Serial No. 065 Calibration No. 18 - 3

Test Date 04/25/2005

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.4 C	Yes
Relative Humidity	10 - 70 %	25 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.29 m/sec	Yes
Upper Rib Bar Peak Acceleration	37 - 46 g	45.5 g	Yes
Lower Rib Bar Peak Acceleration	37 - 46 g	44.3 g	Yes
Lower Thoracic Spine (T12) Peak Acceleration	15 - 22 g	20.4 g	Yes

Test meets specifications.

Comments:

Technician

V. [Signature]

Approved

[Signature]

04.25.2005 08:45:33 3237

TRE

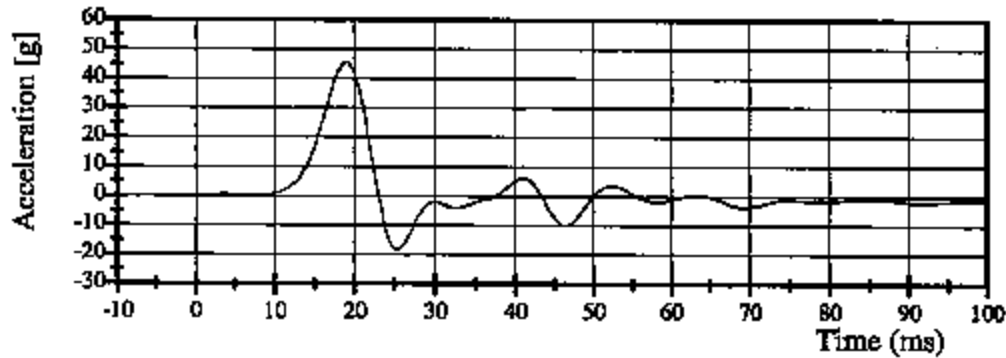
Transportation Research Center Inc.

572F Left Thorax Test

SID Serial No. 065 Calibration No. 18 - 3

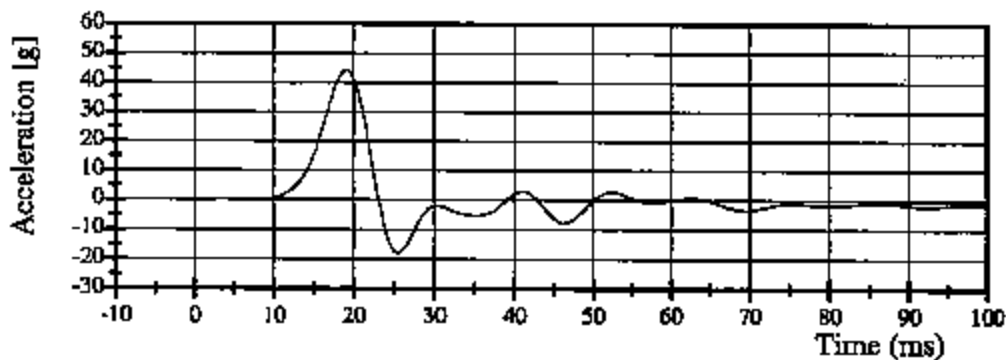
Test Date 04/25/2005

Upper Rib Bar Acceleration



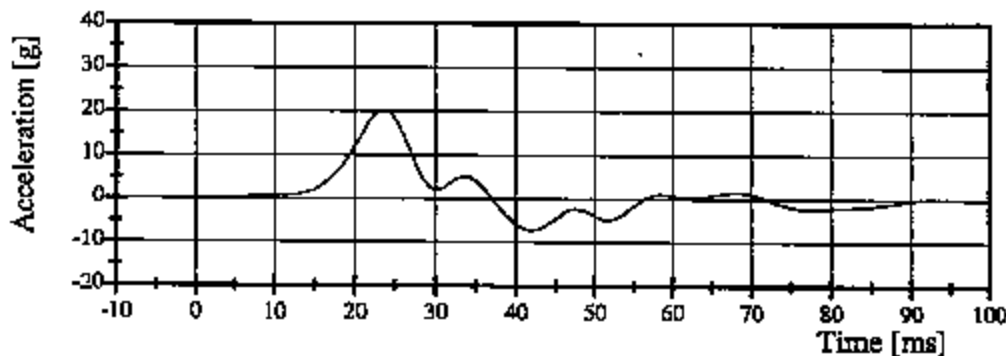
Filter Class: FIR 100
Max: 45.5 g at 19.2 ms
Min: -18.5 g at 25.4 ms

Lower Rib Bar Acceleration



Filter Class: FIR 100
Max: 44.3 g at 19.2 ms
Min: -18.0 g at 25.5 ms

Lower Thoracic Spine (T12) Acceleration



Filter Class: FIR 100
Max: 20.4 g at 23.6 ms
Min: -7.2 g at 41.8 ms

04.25.2005 08:45:34 3237



Transportation Research Center Inc.

572B Abdomen Test

SID Serial No. 065 Calibration No. 18 - 5

Test Date 04/22/2005

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	38 %	Yes
Displacement Rate	6.35 - 8.89 mm/s	7.2 - 8.0 mm/s	Yes
Data Within Required Corridor	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

Vincent Oliveri

Approved

V.F. Walters

04.22.2005 10:30:28 2100

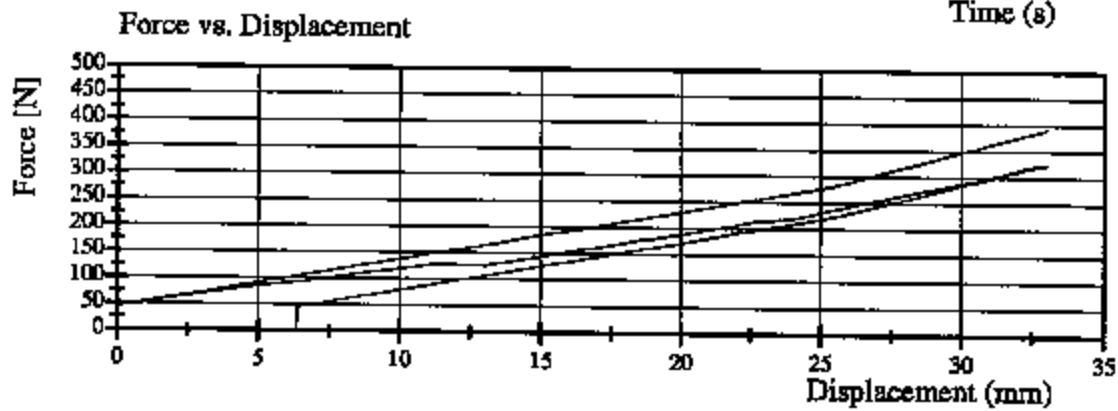
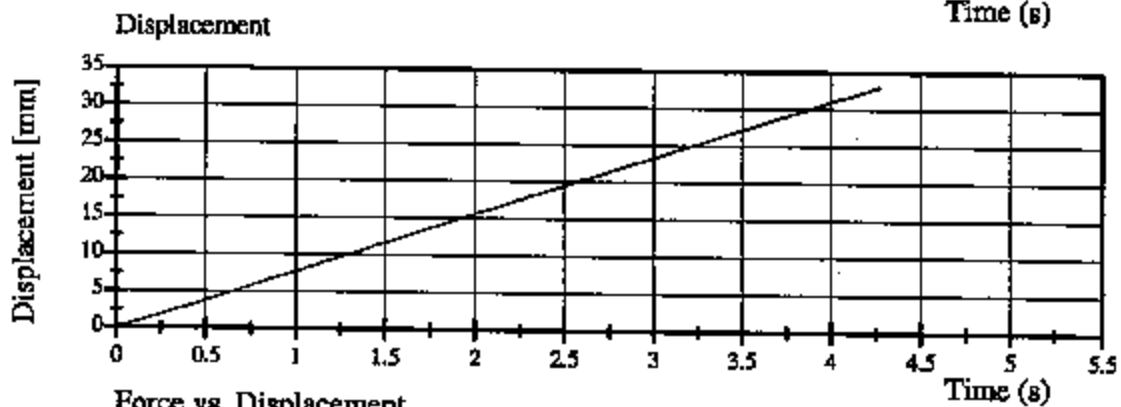
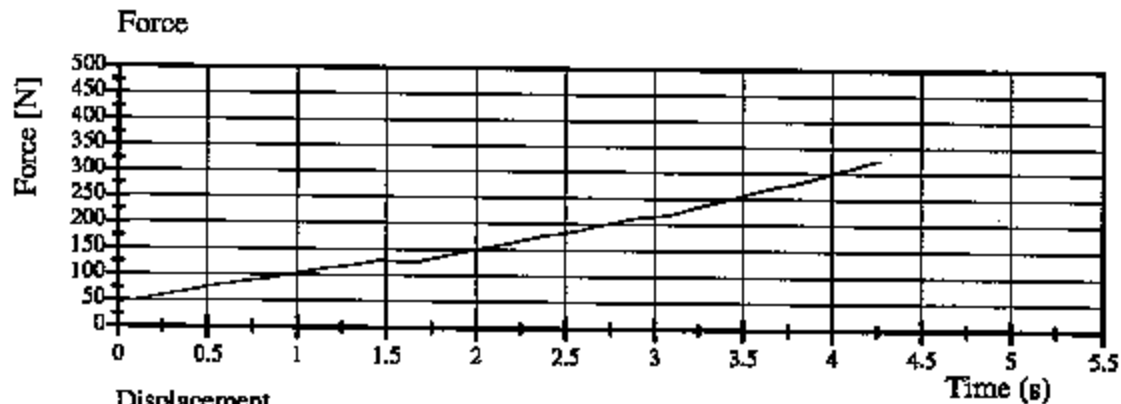


Transportation Research Center Inc.

572B Abdomen Test

SID Serial No. 065 Calibration No. 18 - 5

Test Date 04/22/2005



04.22.2005 10:30:29 2100



TRANSPORTATION RESEARCH CENTER INC.

LUMBAR FLEXION TEST

SID PART 572B

CAL. DATE: 22-Apr-05

TRC, INC.

TEST NO: 065C18TF1

572B SN 065 TORSO FLEX CAL 18

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	18.9 - 25.6° C	21.3 °C
RELATIVE HUMIDITY	10 - 70 %	45 %
FORCE AT 0 DEG. FLEXION	-27 - 27 N	0 N
FORCE AT 20 DEG OF FLEXION	98 - 151 N	129.0 N
FORCE AT 30 DEG OF FLEXION	151 - 205 N	177.9 N
FORCE AT 40 DEG OF FLEXION	205 - 258 N	235.8 N
NET RETURN ANGLE AFTER 3 MINUTES	< 12 °	4.6 °

TEST MEETS SPECIFICATIONS

TECHNICIAN

Vic Di...

Transportation Research Center Inc.

572F Left Pelvis Test

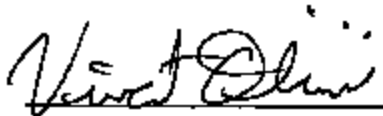
SID Serial No. 065 Calibration No. 18 - 1

Test Date 04/22/2005

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 C	21.1 C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Velocity	4.27 - 4.33 m/sec	4.29 m/sec	Yes
Pelvis Peak Acceleration	40 - 60 g	53.1 g	Yes
Time Above 20 g	3 - 7 ms	5.84 ms	Yes
Unimodal requirement for pelvis acceleration	Yes	Yes	Yes

Comments:

Technician



Approved



04.22.2005 16:37:11 3844

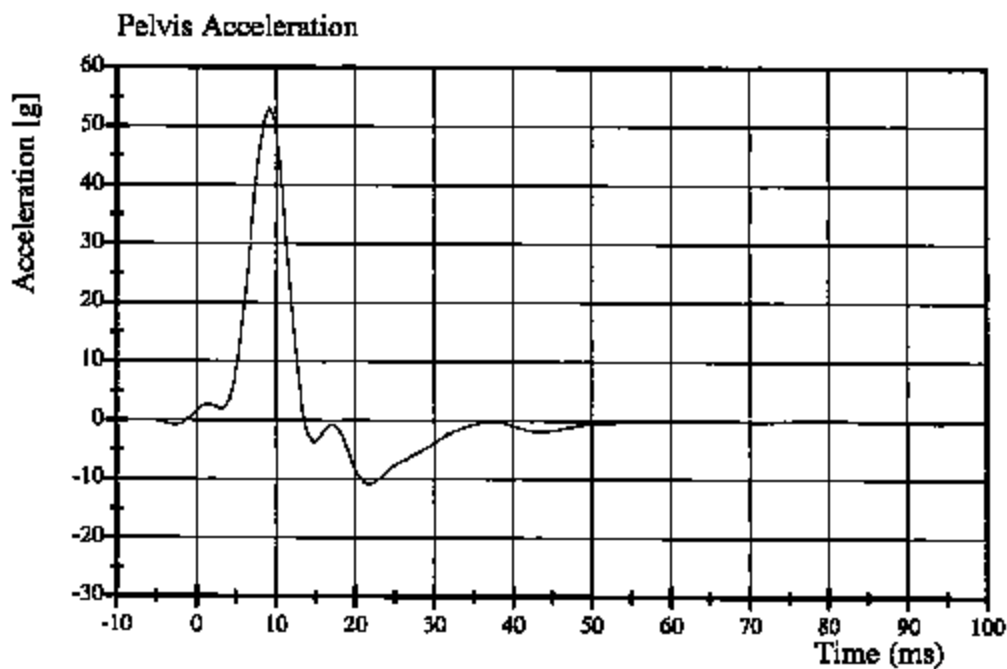


Transportation Research Center Inc.

572F Left Pelvis Test

SID Serial No. 065 Calibration No. 18 - 1

Test Date 04/22/2005



Filter Class: FIR 100

Max: 53.1 g at 9.0 ms

Min: -10.9 g at 21.6 ms

04.22.2005 16:37:12 3044



Type: DOT SID S/N: 028 Mfr: Vector Test Date: 04/13/05
 Proj./Seg. No.: 20020455-2150 Test Eng.: Walter D. Dudek

ITEM	PRE-USE	
HEAD:		
Head Ballast Condition	X	
Accel. Mount Bolts and Cables	X	
Skull Cap Bolts	X	
Head Skin Condition	X	
Accel. Cable Exit (left or right)	(Left) N/A	(Right)
NECK:		
Rubber Condition and Separation From End Caps	X	
NECK-SID/HIII only:		
Condyle Pin, Set Screws	N/A	
Nodding Blocks Condition and Position	N/A	
THORAX: Left side configuration		
Stacked Shoulder Foams and Bolts	X	
* Rib Cage Spring and Support Assembly	X	
* Rib Cage Bolts	X	
* Damper Rear Attachment Ring, Pivot Pins, and Bracket	X	
* Location and Adjustment of Chest Pot Bracket and Collars	N/A	
* Chest Pot Rod End Nuts and Eyebolt	N/A	
Arm Foam Orientation	X	
Thorax/Lumbar Spine Bolts	X	
PELVIS:		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No tape = No kits)	(With) X	(Without)
LEGS AND FEET:		
Femur Load Cell Bolts (30 ft/lbs)	X	
Breakaway Femur Bolts	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
OTHER:		
Cleanliness	X	
Target Position	X	
Clothes	X	
Shoes	X	
Knee & Ankle One G Joint Adjustments	X	

Inspection Completed By: J. Clarridge Date: 04/12/05

Type: DOT SID S/N: 065 Mfr: Denton Test Date: 04/13/05Proj./Seg. No.: 20020455-2150 Test Eng.: Walter D. Dudek

ITEM	PRE-USE	
HEAD:		
Head Ballast Condition	X	
Accel. Mount Bolts and Cables	X	
Skull Cap Bolts	X	
Head Skin Condition	X	
Accel. Cable Exit (left or right)	(Left) N/A	(Right)
NECK:		
Rubber Condition and Separation From End Caps	X	
NECK-SID/HIII only:		
Condyle Pin, Set Screws	N/A	
Nodding Blocks Condition and Position	N/A	
THORAX: Left side configuration		
Stacked Shoulder Foams and Bolts	X	
* Rib Cage Spring and Support Assembly	X	
* Rib Cage Bolts	X	
* Damper Rear Attachment Ring, Pivot Pins, and Bracket	X	
* Location and Adjustment of Chest Pot Bracket and Collars	N/A	
* Chest Pot Rod End Nuts and Eyebolt	N/A	
Arm Foam Orientation	X	
Thorax/Lumbar Spine Bolts	X	
PELVIS:		
Tightness and Alignment of H-Point Tool Insert	X	
* Hips Range of Motion and 1-2g Adjustment (before calibration only)	X	
Upper Femur Bolt Adjustment and Position	X	
Check Spine Kits (Yellow tape = Kits/No tape = No kits)	(With) X	(Without)
LEGS AND FEET:		
Femur Load Cell Bolts (30 ft/lbs)	X	
Breakaway Femur Bolts	X	
Knee Joint Function and Range of Motion	X	
Leg Skin Condition and Position	X	
Ankle Range of Motion	X	
Foot Condition	X	
OTHER:		
Cleanliness	X	
Target Position	X	
Clothes	X	
Shoes	X	
Knee & Ankle One G Joint Adjustments	X	

Inspection Completed By: J. Clarridge Date: 04/12/05

Type: DOT SID S/N: 028 Mfr: Vector Test Date: 04/13/05
 Proj./Seg. No.: 20020455-2150 Test Eng.: Walter D. Dudek

ITEM	POST-USE
HEAD:	
Head Skin Condition	X
Head Ballast Condition	X
NECK:	
Rubber Condition and Separation From End Caps	X
NECK-SID/HIII only:	
Nodding Blocks Condition and Position	X
Nodding Joint Function (no lateral motion)	X
THORAX: Left side configuration	
Jacket Condition	X
Arm Foam Condition	X
Damper and Chest Pot Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	X
Abdomen Condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation From End Caps	X
PELVIS:	
Iliac Crest Bone	X
Flesh Condition	X
Hip Range of Motion	X
LEGS AND FEET:	
Knee Skins and Castings Condition	X
Leg Skin Condition	X
Foot Condition	X
Knee Joint Range of Motion	X
Ankle Range of Motion	X

NOTES: No damage found.

Inspection Completed By: J. Clarridge Date: 04/15/05

Type: DOT SID S/N: 065 Mfr: Denton Test Date: 04/13/05
 Proj./Seg. No.: 20020455-2150 Test Eng.: Walter D. Dudek

ITEM	POST-USE
HEAD:	
Head Skin Condition	X
Head Ballast Condition	X
NECK:	
Rubber Condition and Separation From End Caps	X
NECK-SID/HII only:	
Nodding Blocks Condition and Position	X
Nodding Joint Function (no lateral motion)	X
THORAX: Left side configuration	
Jacket Condition	X
Arm Foam Condition	X
Damper and Chest Pot Movement and Condition	X
Rib Cage Spring and Support Assembly Condition	X
Rib Wrap Condition	X
Abdomen Condition	X
Thorax/Lumbar Spine Bolts	X
Lumbar Spine Condition and Separation From End Caps	X
PELVIS:	
Iliac Crest Bone	X
Flesh Condition	X
Hip Range of Motion	X
LEGS AND FEET:	
Knee Skins and Castings Condition	X
Leg Skin Condition	X
Foot Condition	X
Knee Joint Range of Motion	X
Ankle Range of Motion	X

NOTES: No damage to report.

Inspection Completed By: J. Clarridge

Date: 04/15/05

Appendix D

Test Equipment List and Calibration Information

Sign Convention
SAE J211 MAR95

Accelerometers: +X: Forward
+Y: Rightward
+Z: Downward

Potentiometers: +Chest longitudinal deflection: Outward
+Chest lateral deflection: Rightward
+Seat belt displacement: Outward
+Seat belt extension: Elongation
+Knee slider displacement: Distance between femur and tibia
increased (in relation to a seated
dummy)

Rotation potentiometers:

+About the X-axis: Left foot-eversion
Right foot-inversion
+About the Y-axis: Left/right foot-dorsiflexion
+About the Z-axis: Left foot-internal
Right foot-external

Load cells: +Femur force: Tension
+Seat belt force: Tension
+Barrier force: Tension

Neck load cells: +X force: Head pushed rearward
+Y force: Head pushed leftward
+Z force: Head pulled upward (tension on neck)
+X moment: Left ear rotating toward left shoulder
+Y moment: Chin rotating toward chest
+Z moment: Chin rotating toward left shoulder

Tibia load cells: +X force: Ankle forward, knee rearward
+Y force: Ankle rightward, knee leftward
+Z force: Tension
+X moment: Bottom of tibia moving leftward
+Y moment: Bottom of tibia moving rearward

Sign Convention (Continued)
SAE J211 MAR95

Lumbar load cells:

- +X force: Chest rearward, pelvis forward
- +Y force: Chest leftward, pelvis rightward
- +Z force: Chest upward, pelvis downward
- +X moment: Left shoulder toward left hip
- +Y moment: Sternum toward front of legs
- +Z moment: Right shoulder forward, left shoulder rearward

Frequency Response Classes
SAE J211 MAR95

<u>Typical Test Measurements</u>	<u>Channel Class</u>
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	600
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head Form Accelerations	1000

The direction column on the following sheets describes the transducer output as mounted and wired in the test location. The polarity column indicates whether a polarity change occurred during data acquisition to conform to J211 MAR95. See Report Sign Convention sheet for description of data output as presented in the report; occasionally channels have been adjusted in post-acquisition processing to conform to J211 MAR95.

Channel Report NHTSA 050413

Ref	Channel Name	Transducer ID	ISO Signal Identifier	Description	Polarity	FScale	Units	Assembly
1	DAU712.01	P33829	11RIBSLUR00SIACYA	Left Upper Rib Y	Bipolar	800 g		1-028n.001
2	DAU712.02	P33607	11RIBSLUR00SIACYA	Left Upper Rib Red Y	Bipolar	800 g		1-028n.002
3	DAU712.03	P33894	11RIBSLUR00SIACYA	Left Lower Rib Y	Bipolar	800 g		1-028n.003
4	DAU712.04	P33588	11RIBSLUR00SIACYA	Left Lower Rib Red Y	Bipolar	800 g		1-028n.004
5	DAU712.05	P33800	11SPIN1200SIACYA	Lower Spine Y	-Bipolar	400 g		1-028n.005
6	DAU712.06	P33576	11SPIN12RDSIACYA	Lower Spine Red Y	-Bipolar	400 g		1-028n.006
7	DAU712.07	P33547	11PELVCG00SIACYA	Pelvis Accel Y	-Bipolar	400 g		1-028n.007
8	DAU712.08	P34250	14RIBSLUR00SIACYA	Left Upper Rib Y	Bipolar	800 g		4-065n.001
9	DAU712.09	P34017	14RIBSLUR00SIACYA	Left Upper Rib Red Y	Bipolar	800 g		4-065n.002
10	DAU712.10	P34139	14RIBSLUR00SIACYA	Left Lower Rib Y	Bipolar	800 g		4-065n.003
11	DAU712.11	P33860	14RIBSLUR00SIACYA	Left Lower Rib Red Y	Bipolar	800 g		4-065n.004
12	DAU712.12	P32878	14SPIN1200SIACYA	Lower Spine Y	-Bipolar	400 g		4-065n.005
13	DAU712.13	P34070	14SPIN12RDSIACYA	Lower Spine Red Y	-Bipolar	400 g		4-065n.006
14	DAU712.14	P33508	14PELVCG00SIACYA	Pelvis Accel Y	-Bipolar	400 g		4-065n.007
15	DAU712.15	P33352	16SILBFR0000ACXA	Right Side Sill at Front Seat X-axis Acceleration	Bipolar	400 g		
16	DAU712.16	P33671	16SILBFR0000ACXA	Right Side Sill at Front Seat Y-axis Acceleration	-Bipolar	1000 g		
17	DAU712.17	P35031	16SILBFR0000ACZA	Right Side Sill at Front Seat Z-axis Acceleration	-Bipolar	400 g		
18	DAU712.18	P33806	16SILBRE0000ACXA	Right Side Sill at Rear Seat X-axis Acceleration	Bipolar	400 g		
19	DAU712.19	P33863	16SILBRE0000ACYA	Right Side Sill at Rear Seat Y-axis Acceleration	-Bipolar	1000 g		
20	DAU712.20	P25874	16SILBRE0000ACZA	Right Side Sill at Rear Seat Z-axis Acceleration	-Bipolar	400 g		
21	DAU712.21	P33565	18FORA000000ACXA	Rear Floorpan Above Axle X-axis Acceleration	Bipolar	1000 g		
22	DAU712.22	P34978	18FORA000000ACYA	Rear Floorpan Above Axle Y-axis Acceleration	-Bipolar	1000 g		
23	DAU712.24	P34041	18FORA000000ACZA	Rear Floorpan Above Axle Z-axis Acceleration	-Bipolar	1000 g		
24	DAU712.25	P39015	14SILBRE0000ACYA	Left Side Sill at Rear Seat Y-axis Acceleration	Bipolar	1000 g		
25	DAU712.26	P42158	14SILBFR0000ACYA	Left Side Sill at Front Seat Y-axis Acceleration	Bipolar	1000 g		
26	DAU712.27	P40030	16VEHCRE0000ACYA	Flight Rear Occupant Compartment Y-axis Accel	-Bipolar	1500 g		
27	DAU712.28	P33535	14BPILLO0000ACYA	Left Lower B-Post Y-axis Accel	Bipolar	1500 g		
28	DAU712.29	P29191	14BPILM0000ACYA	Left Middle B-Post Y-axis Accel	Bipolar	1500 g		
29	DAU712.30	P41059	11APILLO0000ACYA	Left Lower A-Post Y-axis Accel	-Bipolar	1500 g		
30	DAU712.31	P42013	11APILM0000ACYA	Left Middle A-Post Y-axis Accel	-Bipolar	1500 g		
31	DAU712.32	P38616	11SETRFR0000ACYA	Left Front Seat Track Y-axis Acceleration	Bipolar	1500 g		
32	DAU3175.01	P42215	14SETRLE0000ACYA	Left Rear Seat Track Y-axis Acceleration	-Bipolar	1500 g		
33	DAU3175.02	P30398	10VEHCCG0000ACXA	Vehicle Center of Gravity X-axis Acceleration	Bipolar	1000 g		
34	DAU3175.03	P38845	10VEHCCG0000ACYA	Vehicle Center of Gravity Y-axis Acceleration	-Bipolar	1000 g		
35	DAU3175.04	P34171	10VEHCCG0000ACZA	Vehicle Center of Gravity Z-axis Acceleration	-Bipolar	1000 g		

36	DAU712.Trigger	Trig D1	10ZERO000000VO0A	EVENT	Bipolar	1 Logic
37	DAU3173.01	P40424	M0MBARCG0000ACXA	MDB CG X	Bipolar	600 g
38	DAU3173.02	P41712	M0MBARCG0000ACYA	MDB CG Y	-Bipolar	600 g
39	DAU3173.03	P41565	M0MBARCG0000ACZA	MDB CG Z	-Bipolar	600 g
40	DAU3173.04	P34888	M7FRAMLERE00ACXA	MDB LT RR X	Bipolar	600 g
41	DAU3173.05	P35041	M7FRAMLERE00ACYA	MDB LT RR Y	-Bipolar	600 g
42	DAU3173.Digital	Bit.00	M3CONT000000VO00	MDB Right Side Contact Switch	Bipolar	1 Logic
43	DAU3173.Digital	Bit.01	M1CONT000000VO00	MDB Left Side Contact Switch	Bipolar	1 Logic

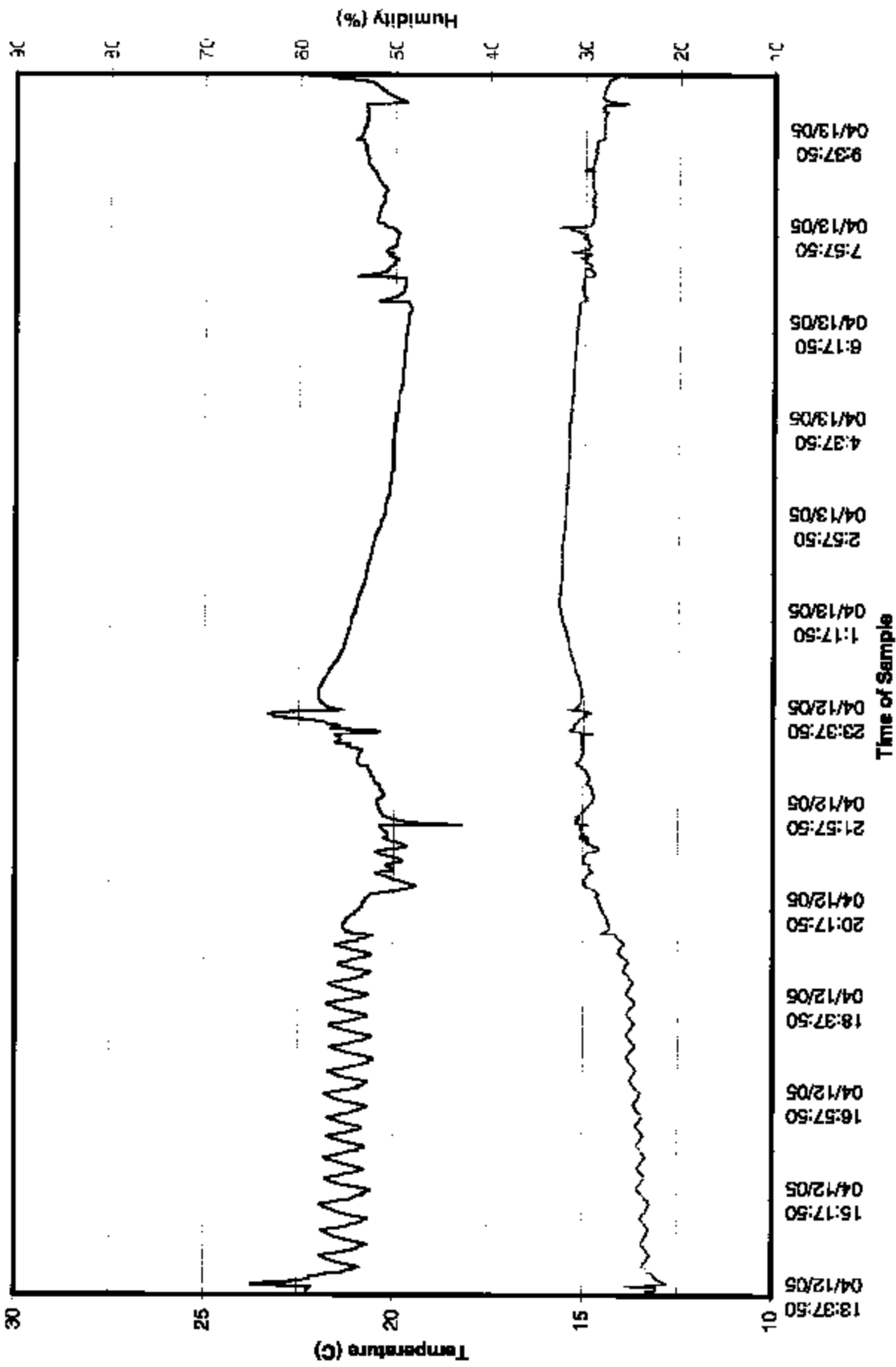
Dummy NHTSA 028 SID

Order	ISO Location Code	Transducer ID	Units	Description	FScale	Invert	Cal Due On
1	RIBSLU00SIACYA	P33829	g	Left Upper Rib Y	800	NO	9/10/2005
2	RIBSLURDSIACYA	P33607	g	Left Upper Rib Red Y	800	NO	9/10/2005
3	RIBSLL00SIACYA	P33884	g	Left Lower Rib Y	800	NO	9/10/2005
4	RIBSLLRDSIACYA	P33588	g	Left Lower Rib Red Y	800	NO	9/10/2005
5	SPIN1200SIACYA	P33600	g	Lower Spine Y	400	YES	9/10/2005
6	SPIN12RDSIACYA	P33576	g	Lower Spine Red Y	400	YES	9/10/2005
7	PELVCG00SIACYA	P33547	g	Pelvis Acce! Y	400	YES	9/10/2005

Dummy NHTSA 065 SID

Order	ISO Location Code	Transducer ID	Units	Description	FScale	Invert	Cal Due On
1	RIBSLU00SIACYA	P34250	g	Left Upper Rib Y	800	NO	9/13/2005
2	RIBSLURDSIACYA	P34017	g	Left Upper Rib Red Y	800	NO	9/13/2005
3	RIBSLL00SIACYA	P34139	g	Left Lower Rib Y	800	NO	9/13/2005
4	RIBSLLRDSIACYA	P33860	g	Left Lower Rib Red Y	800	NO	9/13/2005
5	SPIN1200SIACYA	P32878	g	Lower Spine Y	400	YES	9/13/2005
6	SPIN12RDSIACYA	P34070	g	Lower Spine Red Y	400	YES	9/13/2005
7	PELVCG00SIACYA	P33508	g	PELvis Accel Y	400	YES	9/13/2005

48/24 KPH 90 DEGREE SIDE IMPACT (MDB) INTO LEFT SIDE OF 2005 SUBARU LEGACY



D-10

050413

2005 SUBARU LEGACY 2.5 I SEDAN ALL-WHEEL DRIVE

LEGACY

Manufacturer's Suggested Retail Price
\$20,995.00

Standard Vehicle Price

OPTIONAL EQUIPMENT AND OTHER ITEMS

****SUBARU ALL-WHEEL DRIVING SYSTEM ****
 To achieve maximum Traction and Performance, every Subaru Integrates a unique system combining All-Wheel Drive with a symmetrically balanced horizontally opposed engine and an optionally-tuned independent suspension. The result is exceptional Handling and Control in all driving conditions.
STANDARD ON ALL SUBARU VEHICLES

4-SPEED AUTO TRANSMISSION W/SPORTSHIFT \$ 1,000.00
 3YR/36K SUBARU ROADSIDE ASSISTANCE INCLD
 24HRS/7DAYS - SEE OWNER INFO KIT AND INCLD
 WARRANTY FOR DETAILS INCLD
 FOG LAMP KIT \$ 365.00

Standard Features

Frame featured below are included at NO EXTRA CHARGE
 in the Standard Vehicle Price shown at right.

- SAFETY ******* SAFETY *****
FULL-TIME ALL-WHEEL DRIVE (AWD)
ANTI-LOCK BRAKES; 4 CHANNEL, 4 SENSOR
4-WHEEL DISC BRAKES
AIR BAGS; DUAL FRONT (SRS)
SIDE CURTAIN AIR BAGS (SRS)
AIR BAGS; FRONT SEAT SIDE-IMPACT (SRS)
CHILD ANCHORAGE LATCH SYSTEM
CHILD SAFETY LOCKS; REAR DOORS
DAYTIME RUNNING LIGHTS
RING-SHAPE REINFORCEMENT FRAME
FRONT SEATBELTS; HEIGHT ADJUSTABLE
WITH PRE-TENSIONERS & FORCE LIMITERS
3-POINT SEATBELTS, ALL SEATING POSITIONS *****
******* PERFORMANCE AND EXTERIOR *******
2.5L HORIZONTALLY-OPPOSED SOHC ENGINE
16-INCH ALLOY WHEELS
HEADLIGHTS, MULTI-REFLECTOR HALOGEN
SUSPENSION; FOUR WHEEL FULLY INDEPENDENT
WINDSHIELD WIPER & VARIABLE INTERMITTENT
- *****COMFORT, CONVENIENCE AND INTERIOR*******
AIR CONDITIONING (NON-CFC REFRIGERANT)
AM/FM STEREO WITH CD PLAYER & 6 SPEAKERS
CRUISE CONTROL & TILT STEERING COLUMN
DUAL FRONT & REAR CUPHOLDERS
HEIGHT ADJUSTABLE DRIVER'S SEAT
HEADLIGHT'S AUTO-OFF W/IGNITION SWITCH
MAP LIGHTS
MULTI-FUNCTION TRIP COMPUTER
OUTSIDE TEMPERATURE GAUGE
POWER DOOR LOCKS AND POWER MIRRORS
POWER WINDOWS WITH DRIVER'S AUTO DOWN
REAR SEAT ARMREST W/ TRUNK PASS-THROUGH
REMOTE KEYLESS ENTRY SYSTEM *****
******* LIMITED WARRANTIES *******
3 YEAR / 36,000 MILE BASIC
5 YEAR / 60,000 MILE POWERTRAIN
5 YEAR/UNLIMITED MILEAGE RUST PERFORATION
SEE OWNER INFO KIT & WARRANTY FOR DETAIL

OBSIDIAN BLACK PEARL

www.subaru.com

Compare this vehicle to others in the **FREE GAS MILEAGE GUIDE** available at the dealer.

City MPG
22



Highway MPG
30

Actual Mileage will vary with options, driving conditions, driving habits and vehicle's condition. Results reported to EPA indicate that the majority of vehicles with these estimated will achieve between 18 and 26 mpg in the city, (FEEDBACK FUEL SYSTEM) and 0 to 0 mpg highway, and 0 to 0 mpg highway. 25 and 35 mpg on the highway. \$ 840.00

2005 SUBARU LEGACY AWD SEDAN For Comparison Shopping, all vehicles
 2.5 LITRE ENGINE, 4 CYLINDERS, COMPACT
 4SPD SPRT SHFT AUTO TRANS, COMPACT

MULTI-POINT FUEL INJECTION, have been tested mileage ratings ranging from 0 to 0 mpg city and 0 to 0 mpg highway.

ESTIMATED ANNUAL FUEL COST: NOT AVAILABLE

See www.fueleconomy.gov

Notes: Pictured vehicle(s) may differ from model described and may have optional equipment.

5 HATFIELD SUBARU
 0 1400 AUTO MALL DRIVE
 P COLUMBUS, OH 43228
 T 0

5 HATFIELD SUBARU
 0 1400 AUTO MALL DRIVE
 P COLUMBUS, OH 43228
 T 0

24 Hour Subaru Roadside Assistance



The logo printed on recycled paper.

SABF-REV.0 P00001 70459/LOAD NUMBER0335564001 SERIAL NO: 453-BL-6163 57206790 FORT/ASSEMBLY: LAFAYETTE,IN

Ask about Added Security
 The only extended service contract backed by Subaru.

TOTAL VEHICLE & OPTIONS \$ 22,360.00
 DESTINATION AND DELIVERY \$ 575.00
Total Suggested Retail Price \$ 22,935.00

THEY SAID... (SMALL PRINT)

TEST VEHICLE INFORMATION

VEHICLE MODEL YEAR: 2005 VEHICLE MAKE: SUBARU
 VEHICLE MODEL AND BODY STYLE: Sedan

1. NOMINAL INITIAL DESIGN RIDING POSITION –

1.1 FRONT SEAT

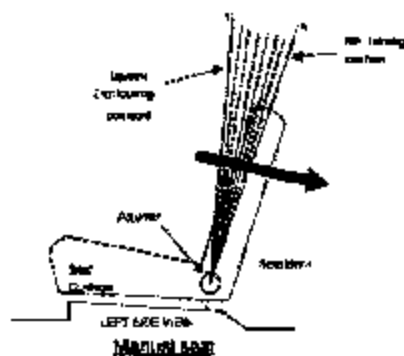
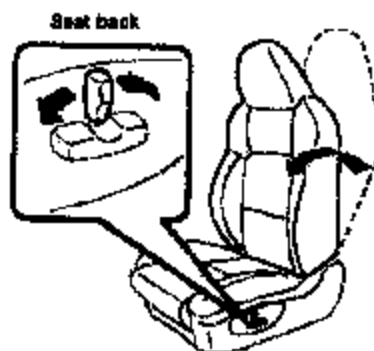
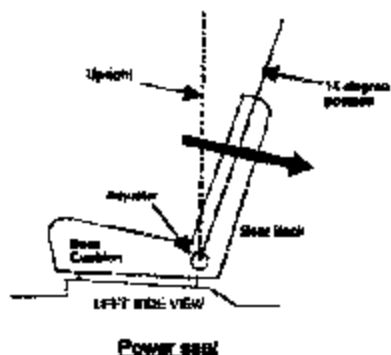
Driver side : Power seat or Manual seat.

(Power seat) Seat back can be located by positioning seat back to 14degree position from upright as illustrated.

(Manual seat) Seat back can be located by positioning seat back to the 8th locking position from upright as illustrated.

Design Angle: 25-degree (at lowest position of seat height)

Passenger side : Same as driver data.



1.2 REAR SEAT

Seat back is non-adjustable, fixed seat.

2. SEAT POSITIONS—

2.1 SEAT FORE & AFT POSITIONS

Driver side : (Power) Set the seat slide to mid position between front most position and rear most position.

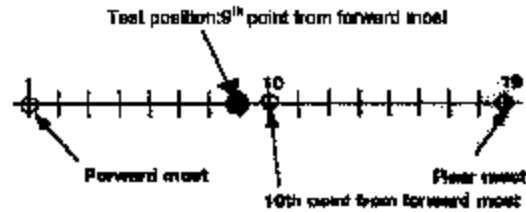
(Manual) Position seat track to the 10th latch position from the forward most position.

Passenger side : Same as driver data.

Seat travel from fore to aft position:

Seat slide only :216mm

Seat slide and height adjustment:238mm



Manual seat



Power seat



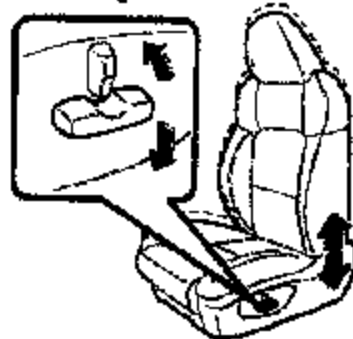
2.2 SEAT CUSHION HEIGHT ADJUSTMENT POSITION

Seat cushion height angle adjustment to the Lowest position.

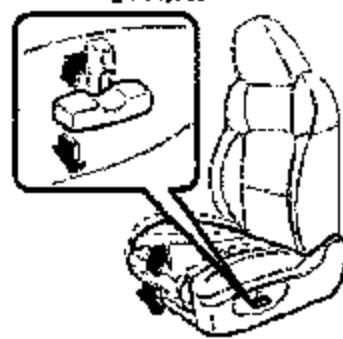
Manual Seat
Cushion height



Power Seat
Cushion height

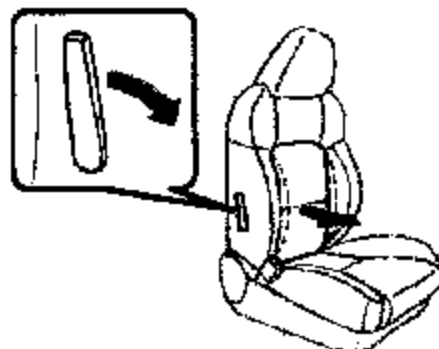


Cushion angle adjust



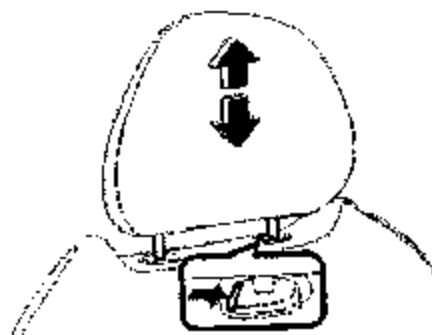
2.3 LUMBER SUPPORT POSITION

Pull the lever fully backward.



2.4 HEAD RESTRAINT POSITION

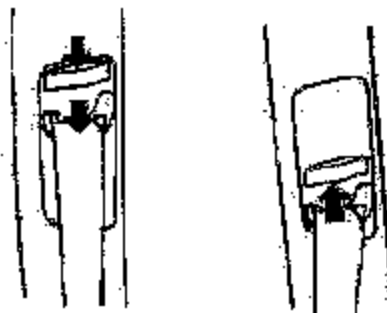
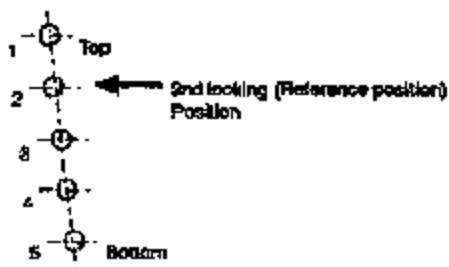
Place the head restraint to the highest position.



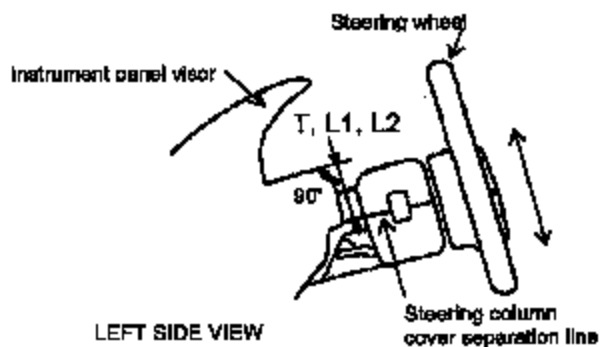
3. ADJUSTABLE UPPER ANCHORAGE POSITION --

Designed position

Locate adjustable upper anchorage to the 2nd locking position from the top.



4. STEERING COLUMN ADJUSTMENTS --



Measure dimensions (between bottom of instrument panel and steering column cover) at highest position (L1) and lowest position (L2) of steering column. Calculate midpoint (T) and locate steering column to midpoint

$$T = \frac{L1 + L2}{2}$$

L1: Dimension at highest position
L2: Dimension at lowest position

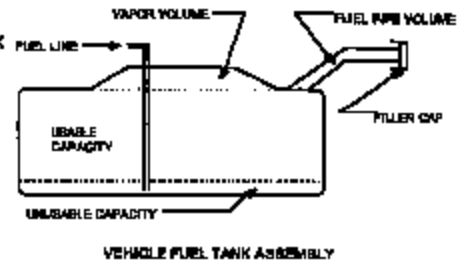
5. FUEL TANK CAPACITY DATA - -

5.1

A. "Usable Capacity" of standard equipment fuel tank

= 17.0 gallons (64 L)B. "Usable Capacity" of optional equipment fuel tank = (N.A.) gallons.

C. "Usable Capacity" of vehicle(s) used for certification testing to requirements of FMVSS 301

= 17.0 gallons (64 L)

5.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s)

= 15.8 gallons (59.7 L)

5.3 Is vehicle equipped with electric fuel pump?

Yes - X No -

If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel.
Pump operates a few seconds after an ignition switch is turned ON.
After that, pump operates only while engine is running.

5.4 Fuel tank location

See page 3-6.**6. Rated Cargo and Luggage Weight - -**A "Vehicle Maximum Capacity Loading" = 408 kgB "Number of Occupants" = 5 (Front : 2, Rear : 3)C "Number of Occupants x 88" = 340 kgD "Rated Cargo and Luggage Weight (A-C)" = 45 kg

Photo 1

Test Position

Adjust down to the 3rd
locking position from
upright
(Design Riding Position)



Photo 2

Upright position



Front seat slide positioning procedure

3-7

Photo 3

Test position

Position seat track to 9th
latch position
(move back to 110mm
from forward most)

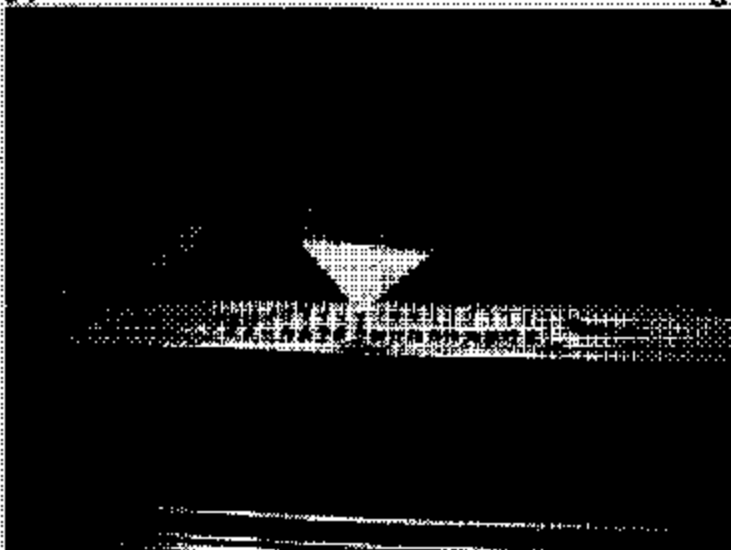


Photo 4

Forward most

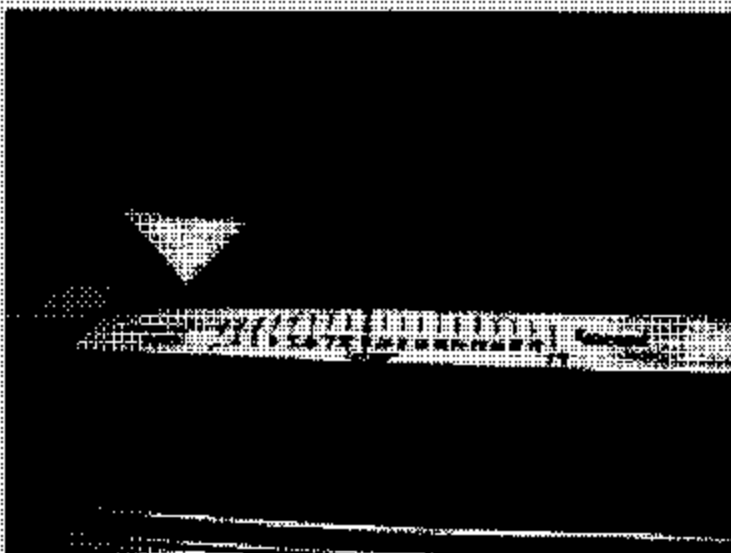
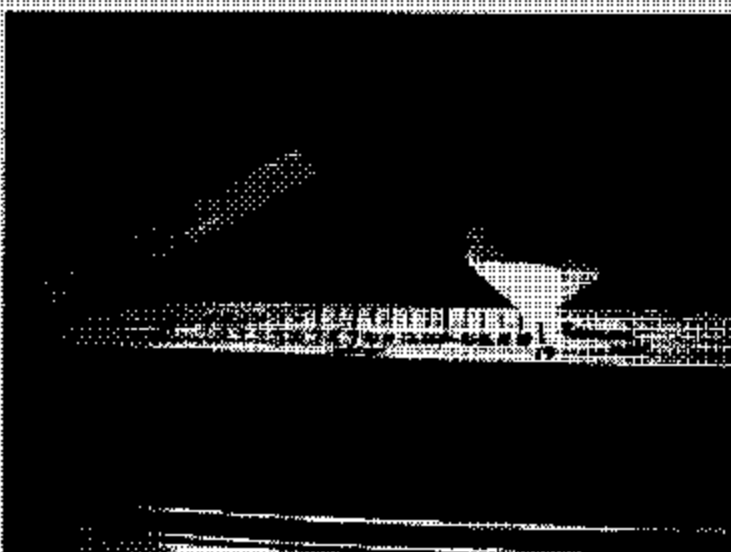


Photo 5

Rearward most



Seat adjustment positioning (height adjustment) procedure

3-8

Photo 6

Test position

Downward most

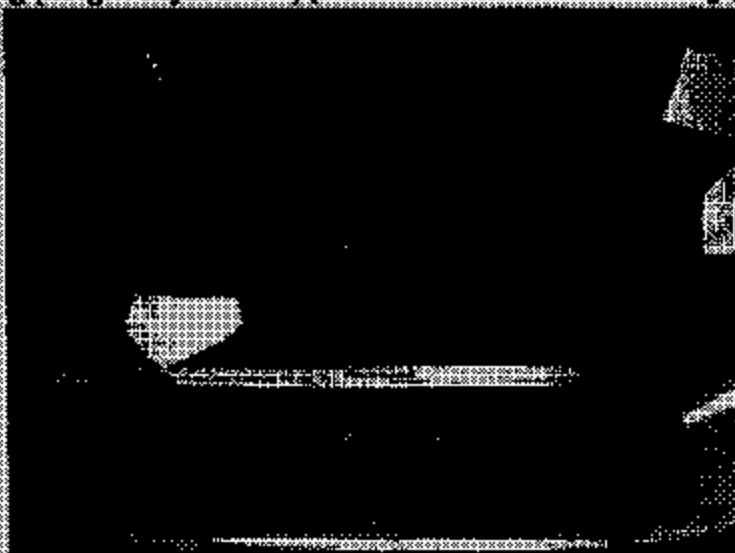
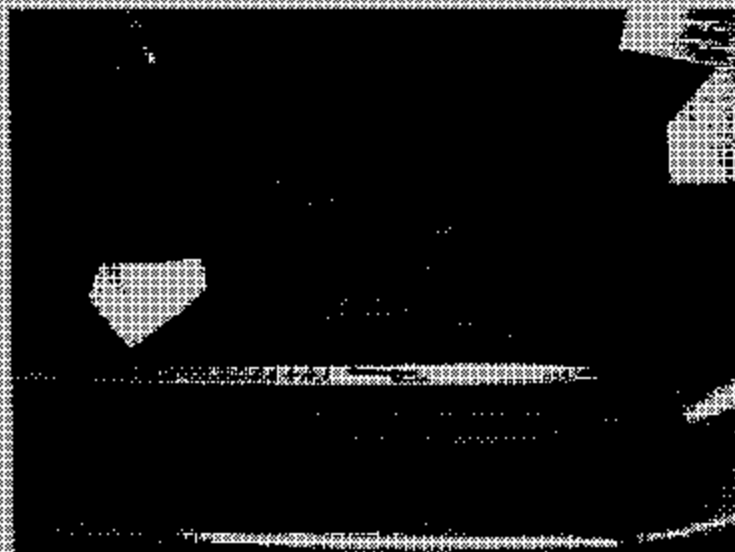


Photo 7

Upward most



Front seat lumbar support adjustment procedure

3-9

Photo 8

Test position

Backward most.

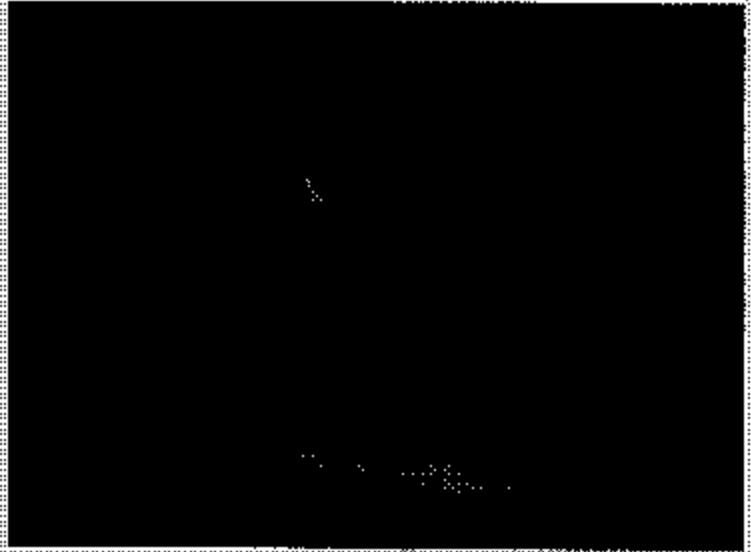
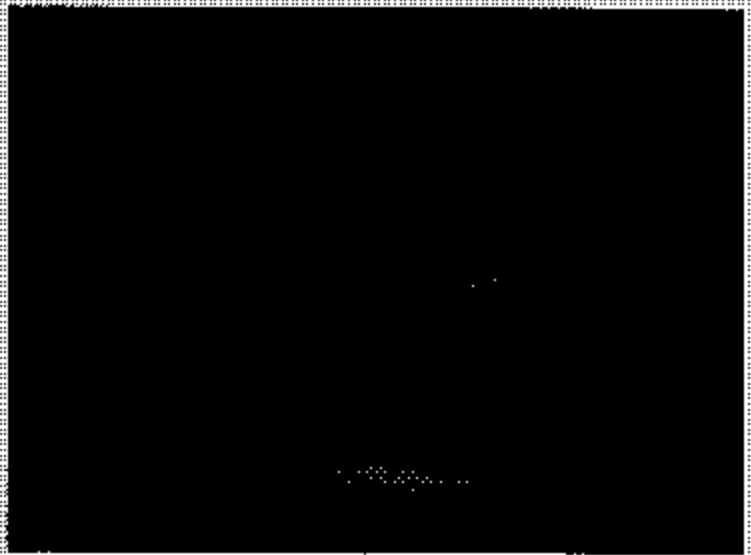


Photo 9

Forward most.



Front head restraint adjustment procedure

3-10

Photo 10

Test position

Upward crook.

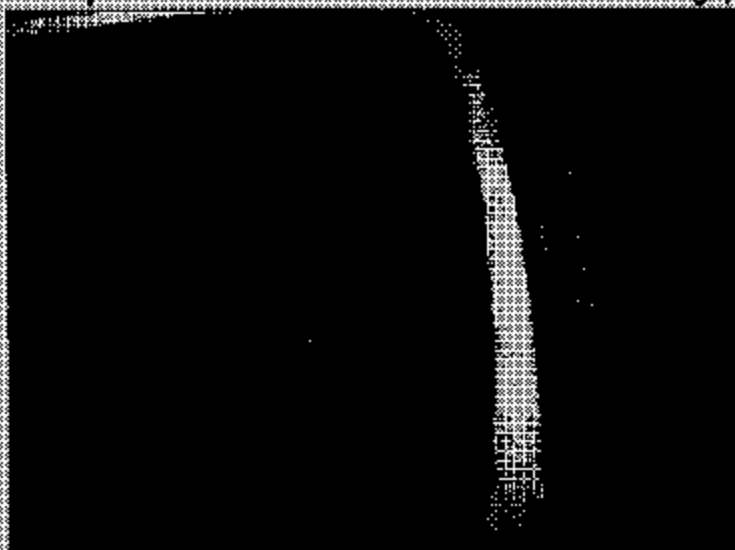
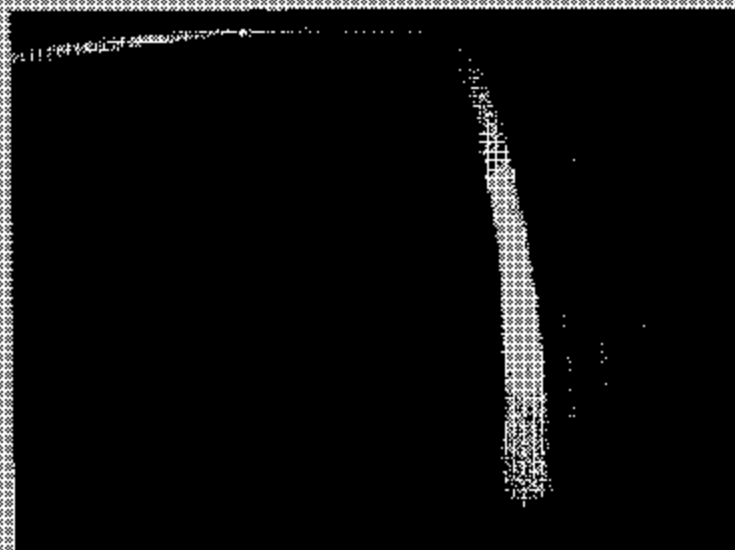


Photo 11

Downward position.



Front seat belt shoulder anchor positioning procedure

3-11

Photo 12

Test position

Position rear seat belt
shoulder anchor track to
2nd latch position from
upward most.

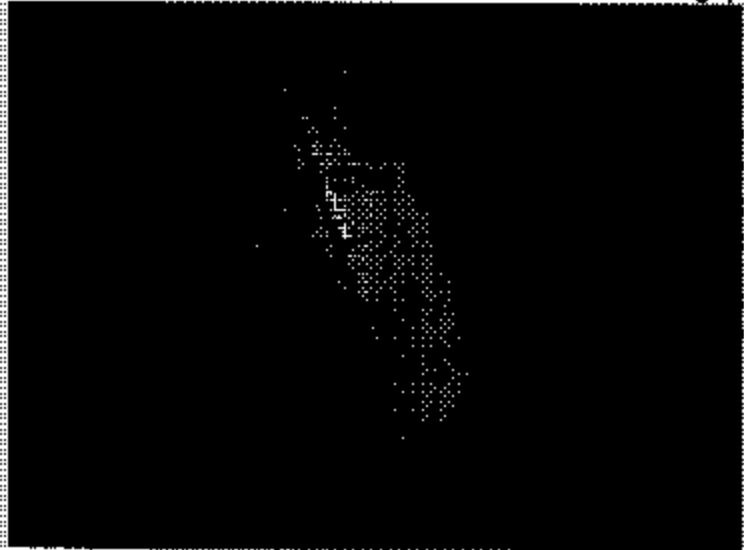


Photo 13

Upward most.

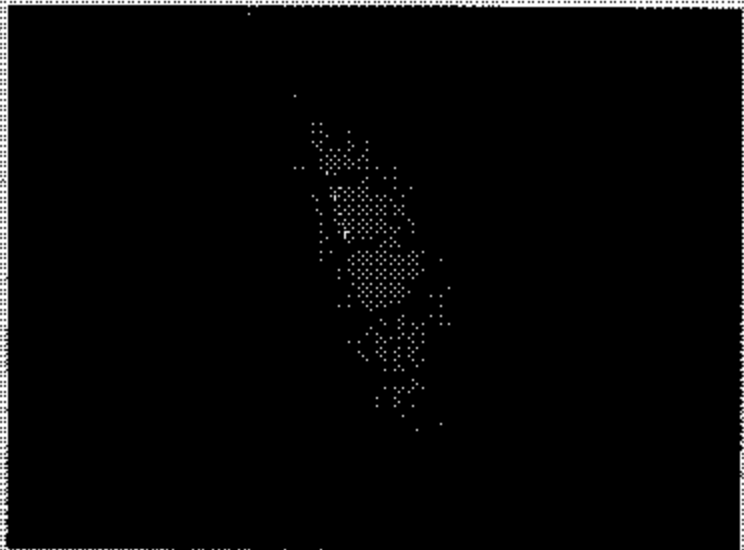


Photo 14

Downward most.

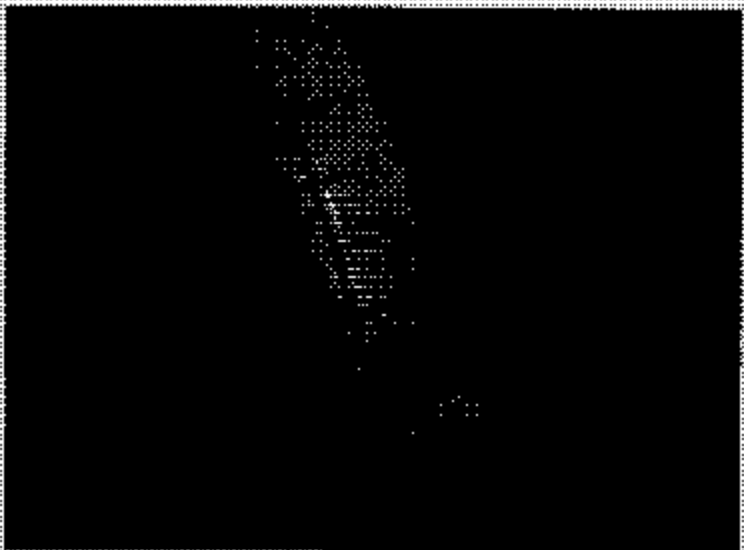


Photo 15

Test position

Upward most

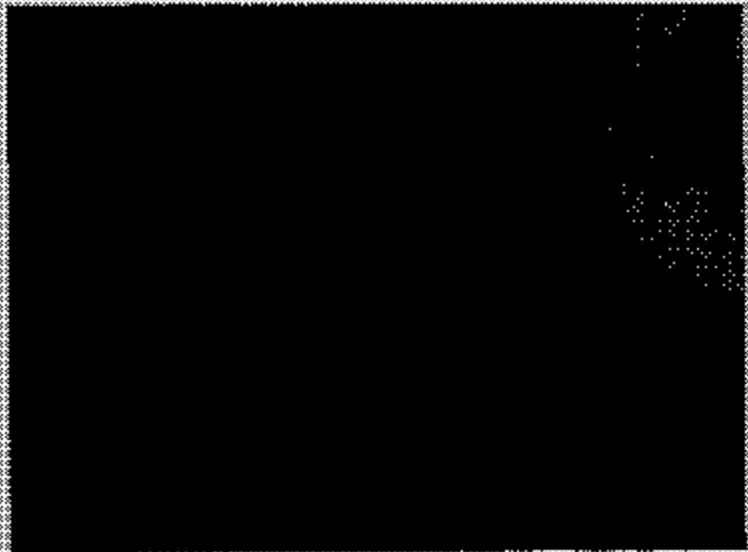


Photo 16

Downward most



Tilt steering column adjustment procedure

3-13

Photo 17

Test position

Position to midway between
upward most and downward
most.

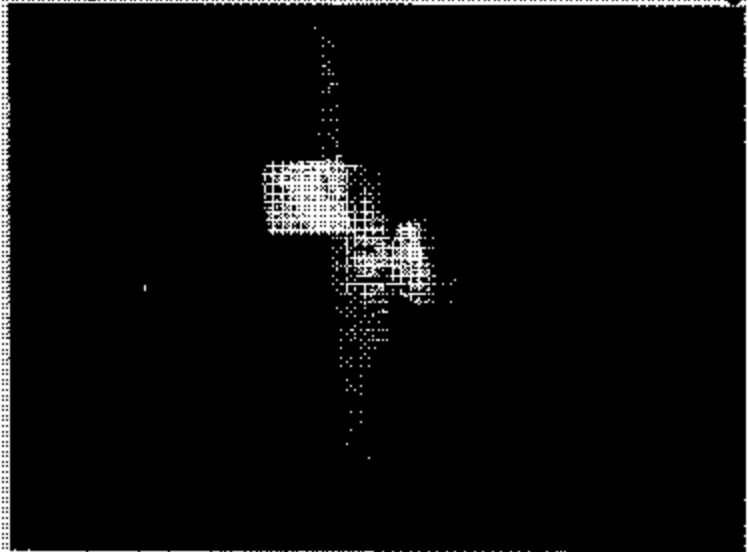


Photo 18

Upward most.

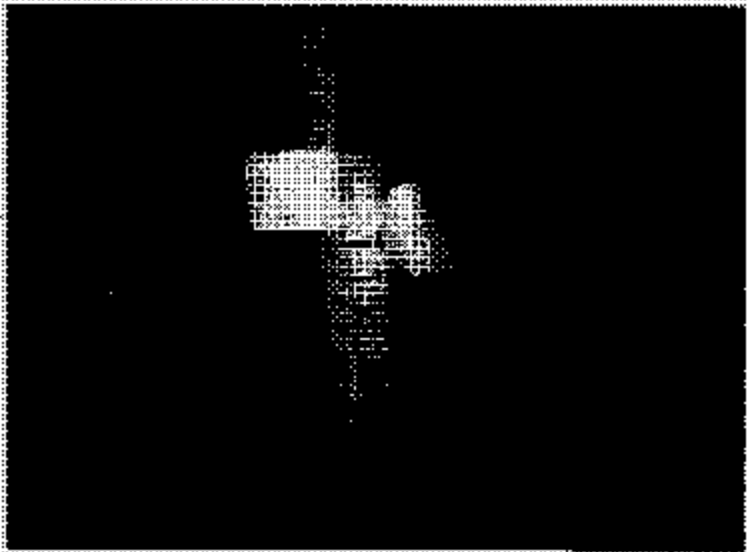
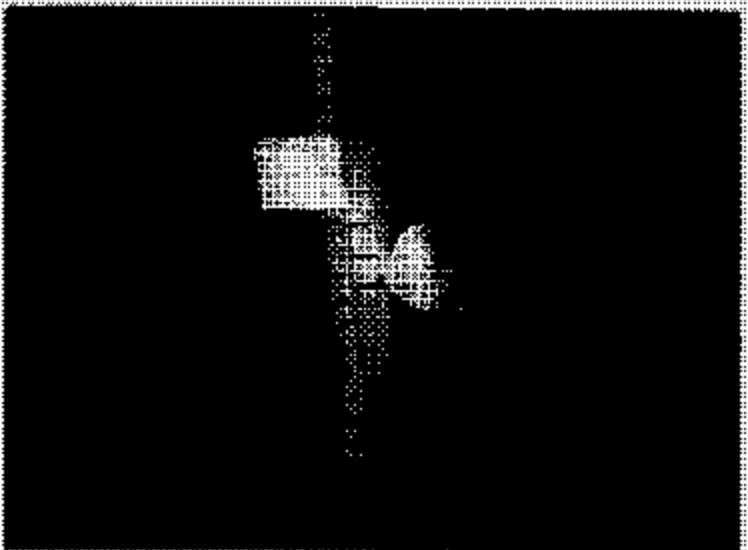


Photo 19

Downward most.



6 FUEL TANK LOCATION

See the figure of fuel tank location.

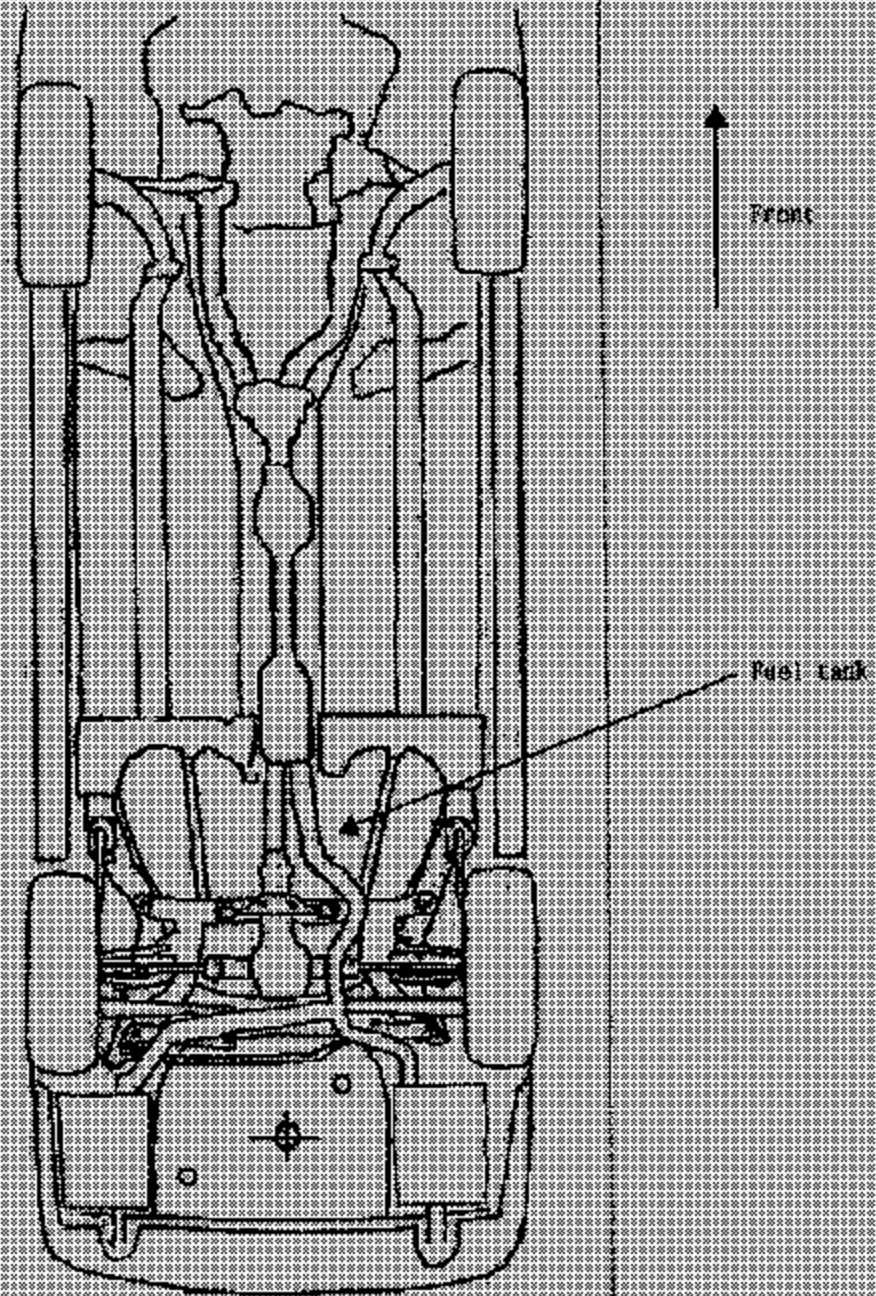


Figure Fuel tank location